

Enhancing serendipity in social interactions through wearable technology

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Thank you all for being an integral part of my success.

Abstract

ENG

This thesis documents the design development of Bolla, a wearable device aimed at fostering serendipitous social connection through subtle yet mindful interactions. By encouraging presence and engagement in the present moment, Bolla seeks to address the weakened bonds to society following the effects of the current global polycrisis. The project was executed in collaboration with Cabinaa, a creative technology studio renowned for crafting innovative experiences with contemporary aesthetics.

To develop a concept of the project we started with a research aimed at identifying meaningful opportunities that could make positive impacts on society. Through exploration into emerging societal challenges, we recognized an enduring need for meaningful social interaction due to the rise of dehumanizing technologies that use profit-generating algorithm aimed to minimise discomfort and maximise time spent alone. Our generative research used thought-provoking “How Might We...?” questions guiding us through brainstorming sessions to uncover novel design opportunities.

As a result, we developed a wearable device that would be used for creating opportunities for serendipitous social interaction. Our approach

was grounded in the idea of poetic interactions, which led us to investigate how haptic feedback could enhance the user experience and foster a sense of togetherness and community.

In addition to our primary focus on social connectivity, we investigated the humanizing aspects of wearable technology. Our exploration considered how these devices could serve as catalysts for bringing individuals closer together in the future.

By combining the power of wearable technology, poetic interactions, and the aspiration for stronger social connections, Bolla emerges as a transformative device offering a unique solution to contemporary societal challenges. Through this thesis, we aim to shed light on the potential of wearable devices in facilitating meaningful human connections and rekindling a sense of community.

ITA

Questa tesi documenta lo sviluppo del design di Bolla, un dispositivo indossabile volto a favorire la connessione sociale fortuita attraverso interazioni sottili ma consapevoli. Incoraggiando la presenza e l'impegno nel momento presente, Bolla cerca di affrontare i legami indeboliti con la società a seguito degli effetti dell'attuale policrisi globale. Il progetto è stato eseguito in collaborazione con Cabinaa, uno studio di tecnologia creativa rinomato per la creazione di esperienze innovative con l'estetica contemporanea.

Per sviluppare un concetto del progetto siamo partiti da una ricerca volta a identificare opportunità significative che potrebbero avere impatti positivi sulla società. Attraverso l'esplorazione delle sfide sociali

emergenti, abbiamo riconosciuto un bisogno duraturo di un'interazione sociale significativa a causa dell'aumento delle tecnologie deumanizzanti che utilizzano algoritmi di generazione di profitto volti a ridurre al minimo il disagio e massimizzare il tempo trascorso da soli. La nostra ricerca generativa ha utilizzato stimolanti "Come potremmo...?" domande che ci guidano attraverso sessioni di brainstorming per scoprire nuove opportunità di design.

Di conseguenza, abbiamo sviluppato un dispositivo indossabile che sarebbe stato utilizzato per creare opportunità di interazione sociale fortuita. Il nostro approccio si basava sull'idea di interazioni poetiche, che ci ha portato a indagare su come il feedback tattile potesse migliorare l'esperienza dell'utente e promuovere un senso di unione e comunità.

Oltre al nostro focus principale sulla connettività sociale, abbiamo studiato gli aspetti umanizzanti della tecnologia indossabile. La nostra esplorazione ha considerato come questi dispositivi potrebbero fungere da catalizzatori per avvicinare le persone in futuro.

Combinando la potenza della tecnologia indossabile, le interazioni poetiche e l'aspirazione a connessioni sociali più forti, Bolla emerge come un dispositivo di trasformazione che offre una soluzione unica alle sfide della società contemporanea. Attraverso questa tesi, miriamo a far luce sul potenziale dei dispositivi indossabili nel facilitare connessioni umane significative e riaccendere un senso di comunità.

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Introduction

Objective

This thesis paper documents the development process of a new project commissioned by the forward-thinking creative technology studio Cabinaa. The project objective was to introduce a series of innovative internal initiatives that would serve as a distinctive feature of their client work. Throughout the paper, every stage of the project's development is thoroughly examined, focusing on addressing prominent global social issues. The journey commences with an extensive research phase, aimed at identifying meaningful opportunities and formulating a precise problem statement. As the paper progresses, it delves into the creation of Bolla, a wearable device engineered to harness the power of technology to facilitate more profound and meaningful social interactions. By providing a comprehensive account of the project's evolution, this paper offers valuable insights into the intersection of creativity, technology, and social impact, ultimately contributing to the broader understanding of innovative approaches in the field.

Background

To gain a deeper understanding of the project's origins, it is essential to acknowledge the background of the creative studio, Cabinaa, and its commitment to enhancing its service offerings.

Cabinaa is a visionary creative studio that serves as a hub for experimentation and exploration, seamlessly blending vision and strategy to revolutionize the realms of live entertainment, fashion, art, and luxury. At its core, the studio strives to be a melting pot where diverse interdisciplinary talents, hailing from various cultures and backgrounds, converge to create synthetic media, captivating visual content, immersive spaces, and interactive journeys that elevate the quality of their client's experiences.

In light of their continuous pursuit of excellence, Cabinaa recognized the need to revitalize their service offerings by embracing innovative internal projects. These ventures were carefully designed to introduce experimental elements that would enrich their future client work, ultimately adding substantial value to their creative endeavors. By embarking on these internal initiatives, Cabinaa solidifies its position as a frontrunner in the industry, poised to redefine the boundaries of artistic expression and reshape the landscape of client-centric services.

Opportunities of Meaning

Recognizing the significance of seeking opportunities of meaning, we understood that the true essence of a successful project lies not merely in its technical prowess but in its ability to resonate with its intended audience on a deeper level. By prioritizing the exploration of mean-

ingful opportunities from the outset, we laid a solid foundation for the project's development. This intentional approach allowed us to transcend conventional boundaries and tap into the inherent human desire for purpose and connection. As we delved deeper into the realm of possibilities, we uncovered profound insights and transformative ideas that would shape the trajectory of our project. By placing meaning at the core of our development process, we ensured that our project would transcend the realm of mere functionality, elevating it into a transformative experience that resonates with and enriches the lives of its users. Through Steve Diller's enlightening perspective in "Making meaning", we realized that the pursuit of meaning is not only vital for the success of our project but also for the profound impact it can have on individuals and society as a whole. [Diller et. al., 2005]

Following our extensive research, we have identified several compelling opportunities that have piqued our interest and warrant further exploration:

1. Cultivating a healthier creative work culture [McAteer, 2020]- our investigation has revealed the pressing need to establish a work environment that nurtures the well-being and creativity of individuals.
2. Addressing the creativity crisis in the era of artificial intelligence [El-Netanany, 2023]- the advent of artificial intelligence (AI) presents both opportunities and challenges for creativity. Recognizing the inherent complexities and potential disruptions, we seek to delve into this opportunity to understand how humans can effectively collaborate with AI to fuel creativity rather than diminish it.
3. Examining the global crisis's impact on the rise of unhappiness and weakening of human connectivity [Gallup, 2022] - the prevailing global crisis has had far-reaching implications on the overall happiness and well-being of individuals worldwide. By exploring this opportunity, we strive to uncover the intricate connections between the crisis and the surge in unhappiness.

In the context of this paper and the project it documents, we will cover the third opportunity of meaning and its in-depth research that resulted in defining the problem the project is based upon.

Problem Statement

The current polycrisis, with its multitude of global challenges, has had a profound impact on the fabric of society, weakening the bonds that hold communities together. As unhappiness rises amidst the complexity of these crises, individuals are experiencing a sense of disconnection and isolation. The erosion of social cohesion can be attributed to various factors, including economic instability, political polarization, environmental concerns, and the overwhelming nature of the crises themselves. As people grapple with these issues, their collective well-being is significantly affected, resulting in weakened social bonds and a sense of fragmentation within society.

Ironically, the very technological advancements that were initially designed to strengthen human connections have inadvertently contributed to the rise of unhappiness and loneliness. In the era of social media and ubiquitous smartphone applications, there was an initial promise of enhanced communication and increased connectivity. However, as time has passed, it has become evident that these platforms often perpetuate feelings of inadequacy, comparison, and isolation. The carefully curated highlight reels and filtered depictions of life on social media can create unrealistic expectations and foster a sense of disconnection from authentic human experiences. Instead of fostering genuine connections, these apps have become breeding grounds for loneliness and a source of unhappiness for many.

How might we...?

As we reflect on the disheartening trend of current use of technology, it becomes crucial to reevaluate the role of technology in our lives and explore ways to mitigate its negative impacts. By focusing on the well-being and meaningful interactions of individuals, we can strive to design and develop applications that prioritize genuine connections, empathy, and community-building. Through thoughtful design choices, fostering digital spaces that encourage authenticity, and promoting mindful usage of technology, we can redirect the trajectory of these platforms and harness their potential to alleviate unhappiness and foster stronger social bonds.

It is essential to recognize that technology alone cannot solve the complex issues of unhappiness and social disconnection. A holistic approach is required, one that addresses the systemic challenges of the polycrisis and actively promotes social cohesion and well-being. By integrating technology with initiatives that prioritize community engagement, and nurturing authentic relationships, we can strive to rebuild the weakened bonds of society.

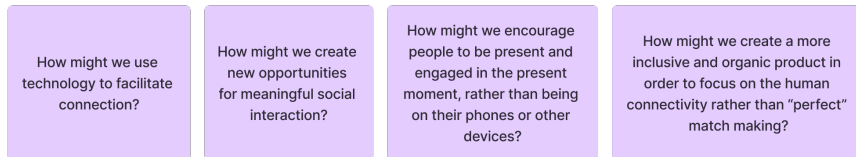
Together, we can foster a sense of belonging, purpose, and interconnectedness, ultimately working towards a world where technology serves as a tool for human flourishing rather than a source of unhappiness and isolation.

To ensure meaningful progress in the project, we made a decision to anchor our extensive research with a single, guiding “How might we...?” question:

“How might we encourage people to connect more in order for them to experience a sense of togetherness?”

The question prompted us to consider alternative perspectives, break free from conventional thinking, and approach the problem from various angles. By posing this question, the focus shifted from the problem itself to the potential solutions that can address it.

In order to help the further research and ideation of the potential solutions, more deeper “How might we...?” questions also arrived:



Formulating the questions in an open-ended manner invites diverse perspectives and encourages innovative thinking. By embracing them, we could navigate the complexities of the design process with a sense of purpose, guiding us toward a meaningful and impactful solution.

Design Process

Overview

Before embarking on any project, it is crucial to establish a clear design process and methodology. This serves as a guiding framework that promotes a structured approach, fosters effective collaboration, and increases the likelihood of successful outcomes. In our case, after careful consideration, we decided to adopt the widely recognized and proven Double Diamond method.

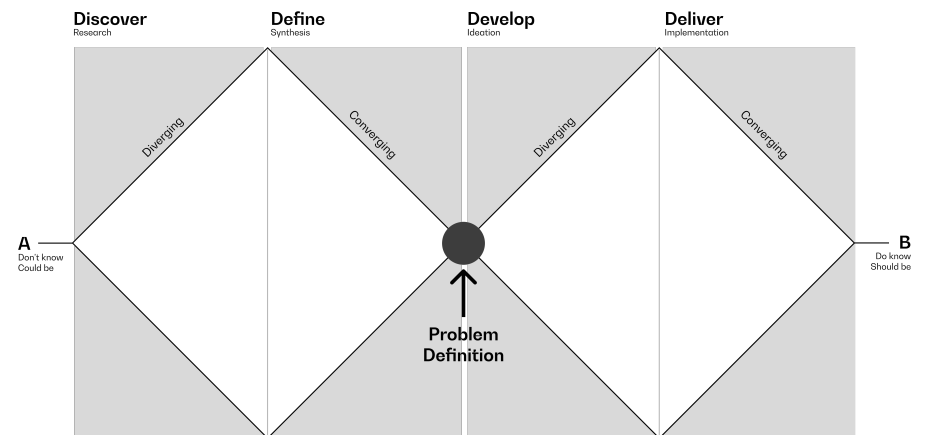


Fig. The standard Double Diamond design process

Originally developed by the British Design Council, the Double Diamond method has gained prominence in various domains, including

product design, service design, and user experience design. However, it is important to acknowledge that while the Double Diamond method provides a solid foundation, each company and project may have unique requirements and constraints that warrant process refinements. In our case, we identified a missing component in the initial stages of our project—the vision diamond. Given our project’s emphasis on pursuing meaningful solutions and the extensive research into potential topics, we realized the need for a dedicated phase focused on defining a clear vision. Embracing divergent and convergent thinking, we embarked on a comprehensive journey that encompassed vision definition, problem definition, and solution generation.

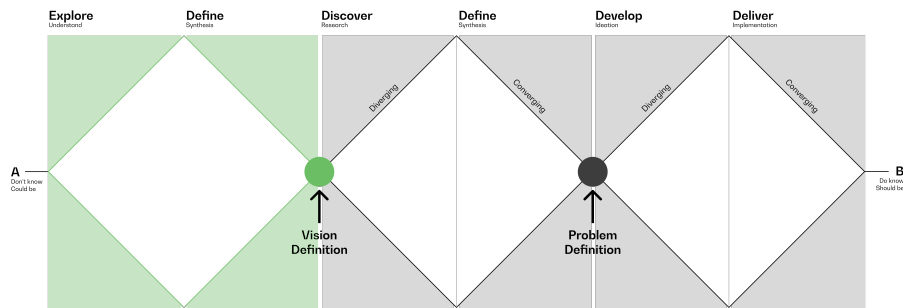


Fig. Double Diamond with the vision diamond

The vision diamond can be divided into two stages, the exploration stage and defining stage. During the initial stage, we as designers worked closely with the studios business layer to gain a comprehensive understanding of the overarching purpose. By employing holistic thinking, we aimed to generate a wide range of opportunities that contribute to the desired outcomes for both people and the business. This divergent approach allows for exploration and brainstorming, ensuring that all possibilities are considered and potential paths are uncovered. In the subsequent step, we shifted from exploration to convergence. We distilled the broad ideas and concepts generated in the previous stage into a concise vision statement. This vision statement encapsu-

lates the desired contributions and outcomes, serving as a guiding light for the project. By clarifying and aligning everyone’s understanding of the vision, we ensured a focused and unified effort towards agreed-upon goals and value-driven outcomes.

Following the vision phase, we continued with the research phase. Aligning with the standard Double Diamond method delved deeper into understanding the needs and aspirations of our users, undertaking extensive market research, and conducting surveys to inform our ideation process. This holistic approach empowered us to outline a comprehensive vision for our solution while identifying and refining its most crucial features.

Building upon this solid foundation, we seamlessly transitioned into the development phase, breathing life into the concept we meticulously crafted. Embracing the iterative nature of design thinking, we remained receptive to feedback and continuously sought improvements. This ensured that our solution resonated authentically with its intended audience and effectively addressed their pressing needs.

Research Methodology

As we embark on the research phase for our project, which aims to develop a product that utilizes technology to facilitate connections and that could create opportunities for meaningful social interaction, we are guided by several key UX research objectives. Firstly, we seek to collect inspiration for innovation, exploring existing solutions and examining successful case studies to glean valuable insights that can fuel our creative process. Our focus also lies in detecting unsolved needs and unfulfilled wishes within the realm of connection, as this

will enable us to design a service that truly addresses the pain points of users. Additionally, we strive to frame trends in technology and human behavior, recognizing that staying abreast of emerging patterns and behaviors is vital for designing a service that remains relevant and future-proof. By incorporating these UX research finalities, we lay the groundwork for a comprehensive and user-centered approach, ensuring that our service not only facilitates connections but does so in a meaningful and impactful way.

To effectively achieve our research objectives, we employed a range of research methods that align with our above mentioned finalities. By employing a mix of qualitative and quantitative research methods, we have gained a comprehensive understanding of user needs, market dynamics, and emerging trends. This multifaceted approach ensures that our project is grounded in user insights while also drawing inspiration from the wider creative and technological landscape.

We conducted a review of existing literature, case studies, and industry reports to gather insights and inspiration. We also employed user interviews, surveys, and contextual inquiries to understand the challenges, desires, and pain points users face when it comes to connection. By actively listening to users' experiences, we could identify gaps and unmet needs that our product can address. Additionally, we employed trend analysis, competitor benchmarking, and industry research to identify emerging patterns in technology and human behavior. This allowed us to stay ahead of the curve and design a product that is not only relevant today but also adaptable to future trends.

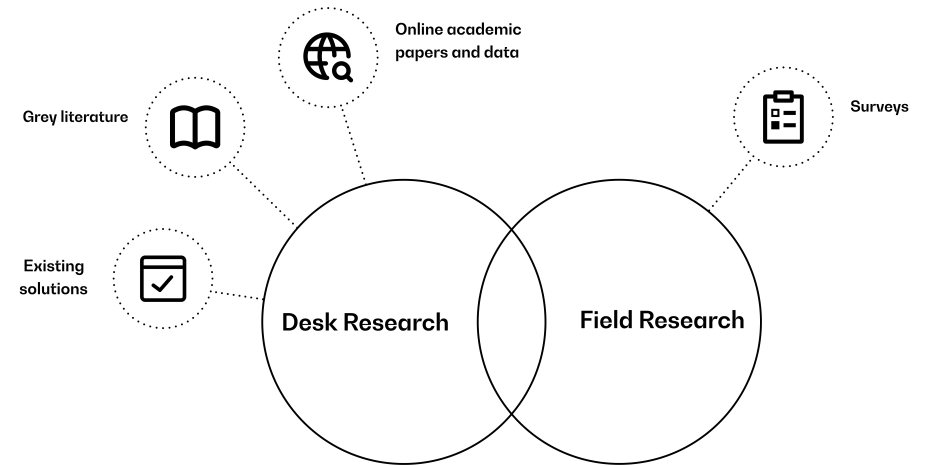


Fig. Research framework

Desk Research

Topic analysis

Throughout the desk research we were searching for the evidence of the importance of our topic. We started by looking for articles, stories, and previous research related, in some way or another, to the topic of why, who, and what is causing this problem that people are facing with a lack of connection and meaningful social interaction. Evidence of the importance of the topic were prominent, and words like - unhappiness, fear, loneliness, and anxiety - were recurring.[Center of Humane Technology, n.d.]

We encountered a vast amount of meaningful stories about how the current solutions that are meant to minimise the effects of loneliness are actually producing the counter effect.[Fisher-Quann, 2022] We discovered that certain products, allegedly designed to foster connection,

inadvertently yield the opposite effect. Delving deeper, we conducted a comprehensive examination of how these offerings inadvertently dehumanize the essence of interpersonal interaction, thereby undermining the core objective they were intended to fulfill. [Hughes, 2021] This realization compelled us to reflect on the crucial importance of preserving the authenticity and meaningfulness of social connections within the realm of technology-driven solutions. Armed with this newfound insight, we are driven to craft a transformative service that not only mitigates loneliness but restores the inherent value and depth of genuine human connection.

Algorithmic bias

In today's landscape, the prevailing services often employ algorithms that promise to connect individuals with their "perfect match" or the most captivating personalities. However, the reality reveals that many of these platforms heavily rely on **collaborative filtering recommender systems**, which evaluate and filter items based on the opinions of others. [Schafer et. al., 2007] Unfortunately, this approach has unintended consequences, contributing to the formation of a large user base where uncommon preferences appear even more exceptional, while common preferences are further amplified. This disparity is made worse by the delicate balance between the effectiveness of collaborative filtering and the tech company's pursuit of maximizing user acquisition. Consequently, we witness the proliferation of numerous apps owned by the same entities, segregating users into distinct groups based on religion, ethnicity, sexual orientation, and geographical location. This unfortunate reality paints a picture of the current online landscape, where the noble pursuit of bringing people closer is mired in the unintended consequences of algorithmic design and user segmentation.

Service analysis

Amidst the pervasive problem of a lack of meaningful connection and interaction, plenty of services had emerged, each striving to alleviate these existing challenges. With a keen focus on our project goals, we undertook a comprehensive analysis of the most intriguing and relevant solutions available. Employing benchmarking methods we went deep into the intricacies of these services, seeking insights that could inform and enhance our project. Through this rigorous process, we identified key contenders that resonated with our objectives, both in terms of their approach and alignment with our goals. By examining their features, functionalities, user experiences, and overall impact, we gained valuable insights into the successes, limitations, and unique value propositions of these services.

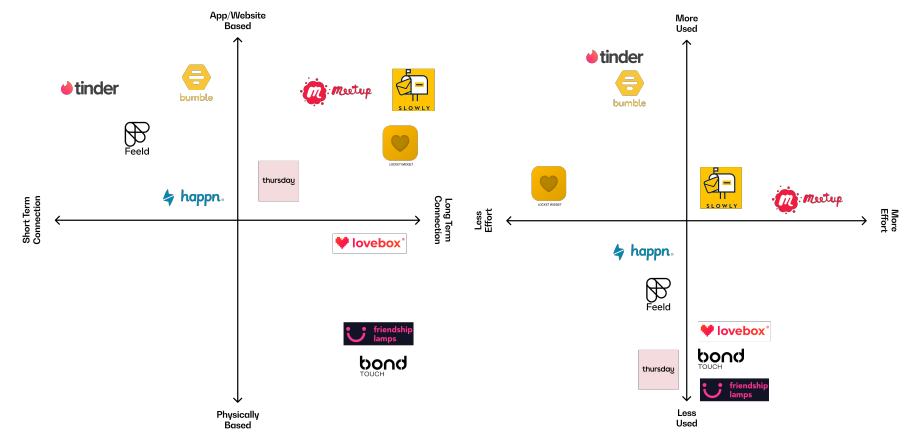


Fig. Benchmark Matrix

The benchmarking analysis of the existing solutions depicted in the diagram above sheds light on a significant disparity between app/web-site-based services facilitating short or long-term connections and physically-based services. While mobile applications offer convenience and widespread usage, physically-based products often face lower uti-

lization rates. Recognizing this gap, our analysis delved deeper into the most intriguing solutions to gain a comprehensive understanding of their strengths and weaknesses. By scrutinizing their features, functionalities, user experiences, and overall impact, we sought to identify the underlying factors contributing to their success or limitations. This comprehensive exploration allowed us to extract valuable insights that would inform our own project's development, enabling us to bridge the gap between digital and physical experiences and create a solution that combines the convenience of technology with the richness of in-person interactions.

Existing Solutions Analysis				
Name	Slogan	Positioning	Strengths	Weaknesses
THURSDAY	The offline dating app	A singles member's club that bridges the gap between online dating and offline experiences. We look at being single differently. 6 out of 7 days of the week spend time on you, not a dating app.	Focuses on the in-person meeting and interaction rather than wasting time on the app.	It presents an invasive approach to meeting someone, putting pressure on someone to meet the exact same day.
BUMBLE BFF	Find your kinda people with Bumble For Friends	Bumble For Friends is about exactly that, friends. Whether you moved to a new city, found a new hobby, or just want a new person to talk to—Bumble For Friends is about finding your kinda people.	It is strictly meant to facilitate platonic relationships.	It works on the principles of the recommendation algorithm.
MEETUP	Keep connected Make real connections	Used to find upcoming events and keep connected to your community. Find groups in your area that are doing things that interest you. Most people who love what you love, and stay in touch after the event.	Creates possibilities to find and build local communities.	It is mostly group based and doesn't necessarily guarantee an individual deeper connection with others
LOCKET WIDGET	Live pics from best friends	It is a widget that shows live photos from your best friends, right to your Home Screen. You will see new pictures from each other every time you unlock your phone. It's a little glimpse of what everyone's up to throughout the day.	The innovative use of the home screen widgets. Creates the sense of connectivity with your friends without spending excessive time on the phone.	It is meant for people you already know. It is only iPhone based which is excluding a vast number of people.
BOND TOUCH	'Stay in touch' with the people you love	Band Touch bracelets, an emotional wearable. The bracelet is designed to bridge the distance between relationships by enabling touch to be sent over any distance.	It is digitally almost entirely independent and focuses on the physical feeling of connection (touch, heartbeat etc.)	It is meant for close relationships with one individual.
LOVE BOX	The world's first Love Note messenger	The Lovebox is a connected, messaging device that pairs with an app to go beyond regular communication and deliver special expressions of affection.	The interactive physical object that symbolises the love letter messenger.	It requires the use of an app and it is meant for close relationships.

Fig. Benchmarking

This exploration enabled us to distill the best practices and learn from the lessons of others, providing a solid foundation upon which we could build our innovative solution. Through this benchmarking and comparative analysis, we not only honed our understanding of the

existing landscape but also uncovered invaluable insights that would shape the trajectory of our project, empowering us to deliver a solution that truly addresses the fundamental challenges of meaningful connection and interaction in a distinctive and impactful manner.

Field Research

Survey

Simotaneously during the Desk Research phase, we conducted a comprehensive survey to gain deeper insights into users perceptions of existing services and to improved knowledge about our topic. The survey was administered to a diverse group of 21 individuals, ranging in age from 18 to 55 years old. Our primary objective was to collect qualitative data from individuals who actively use or have previously used services for meeting new people or dating.

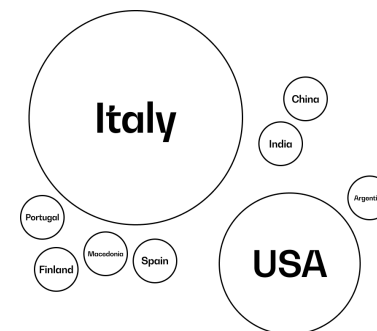


Fig. Participants country of origin

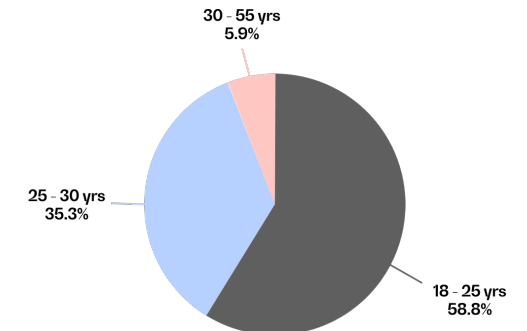


Fig. Participants age range

Active users were asked to provide details about the services they use and their motivations for doing so. On the other hand, former users were invited to share their reasons for discontinuing their usage.

Participants provided a range of reasons for their disengagement with the platforms. Some respondents expressed a lack of interest in using apps to find friends, citing introversion and a preference for interacting with people they already know. Others mentioned a lack of time as a hindrance to their app usage. Additionally, some participants shared negative experiences with dating apps, including encountering ghosting, dissatisfaction with the profiles of potential matches, and frustrations with algorithmic biases. Several individuals highlighted a preference for meeting people in person and finding more organic connections. Notably, some respondents mentioned that they had met someone or were currently in a relationship, leading to their stopping of app usage. Lastly, a participant expressed difficulty finding suitable matches due to specific criteria, such as being child-free and desiring a long-term relationship.

Furthermore, the participants were asked if they are familiar with the collaborative filtering recommender systems that are used as a part of the algorithm in the majority of the services. Participants expressed a range of perspectives regarding their experiences and perceptions of these algorithms. Several respondents felt that collaborative filtering algorithms could exacerbate feelings of loneliness, as they seemed to favor individuals who were already popular or conforming to societal standards of attractiveness. Others mentioned that the algorithms seemed to work well for good-looking individuals who followed the suggested tips and tricks provided by the apps. Some participants expressed skepticism about the effectiveness of these algorithms, suggesting that they did not always work as intended. Concerns about algorithmic bias and the need for new algorithms to address bias and promote diversity were also raised. While some participants acknowledged the potential value of algorithms when properly implemented, they highlighted the risk of creating echo chambers and disadvantaging certain users. However, some respondents believed that algorithms

could be useful in increasing the number of matches or providing a more personalized experience.

Ultimately, participants were asked about their likelihood of using a service that does not employ collaborative filtering algorithms. Despite the majority expressing concerns regarding such algorithms, their responses leaned predominantly towards a negative or neutral inclination.

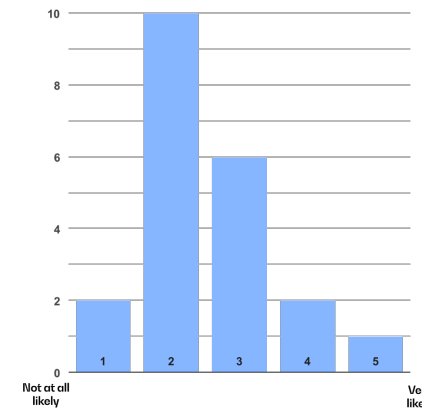


Fig. Participants likelihood of using the service

Research Insights

The design research conducted through desk research: analysis of existing services, online academic papers, grey literature; and field research: a survey; provides valuable insights into the importance of addressing the problem of lack of connection and meaningful social interaction, the challenges posed by algorithmic bias, and the opportunities to bridge the gap between digital and physical experiences. The desk research highlighted the recurring words associated with the problem, such as unhappiness, fear, loneliness, and anxiety. It also revealed that certain solutions designed to minimize loneliness in-

advertently yield the opposite effect by dehumanizing interpersonal interaction. This emphasizes the importance of preserving authenticity and meaningfulness in social connections when developing technology-driven solutions. The analysis of existing services showcased a disparity between app/website-based services and physically-based services, with mobile applications offering convenience and widespread usage, while physically-based products face lower utilization rates. This gap presents an opportunity to create a solution that combines the convenience of technology with the richness of in-person interactions.

The survey provided qualitative data on user perceptions and motivations, highlighting reasons for disengagement from existing platforms, including a lack of interest, preference for known interactions, lack of time, negative experiences with algorithmic biases, and a preference for organic connections. Concerns about algorithmic bias and the need for new algorithms to address bias and promote diversity were also raised by participants.

Overall, the design research points towards the need for a transformative service that not only mitigates loneliness but also restores the inherent value and depth of genuine human connection. It emphasizes the importance of considering algorithmic biases and user preferences in creating a solution that resonates with users and promotes meaningful connections. By leveraging the insights gained from the research, it is possible to develop an innovative service that addresses the fundamental challenges of connection and interaction in a distinctive and impactful manner.

Literature Review

Social Interaction and Connectivity

The Value of Social Interaction

Social interaction stands as a cornerstone of human existence, playing a pivotal role in the formation of our identities, relationships, and experiences. It is through these interactions that we establish connections, forge social bonds, and internalize cultural norms and values. By facilitating communication, cooperation, and collaboration, social interaction becomes a catalyst for the development of intricate social structures and institutions that shape the fabric of society. Additionally, a growing body of research consistently emphasizes the profound significance of social interaction for human health and happiness.

In a noteworthy meta-analysis conducted by Holt-Lunstad, Smith, and Layton (2010), the impact of social relationships and integration on mortality rates was investigated, revealing a compelling association between stronger social ties and a reduced risk of premature death. The study highlighted the protective effects of social interactions, attributing their influence to the provision of emotional support, stress buffering, and a sense of purpose, all of which contribute to improved health outcomes. [Holt-Lunstad et. al., 2010]

Furthermore, social interaction assumes a critical role in cognitive development and learning, as espoused by Vygotsky's sociocultural theo-

ry. Vygotsky posits that learning and intellectual growth occur through social interactions with individuals of greater knowledge or peers. By engaging in social exchanges, individuals are exposed to new ideas, perspectives, and information, thereby expanding their cognitive horizons and facilitating their intellectual development.[McLeod, 2022]

Moreover, social interaction goes beyond cognitive and physical benefits, playing a fundamental role in the cultivation of social skills and emotional intelligence. Within the realm of social interactions, individuals acquire the capacity to comprehend and regulate their own emotions, interpret non-verbal cues, and navigate the complexities of social dynamics. These exchanges not only refine the ability to express empathy and understanding but also bolster one's sense of belonging, self-esteem, and overall well-being. Social interaction fosters a sense of connection, belonging, and social support, all of which are integral to mental well-being. The World Health Organization (WHO) recognizes the significance of social connections in promoting mental health, highlighting that strong social support systems act as protective factors against the onset of mental disorders.[World Health Organization, 2005] The presence of social networks and meaningful relationships provides individuals with crucial emotional support during times of difficulty, alleviating feelings of loneliness and isolation. Such social connections enhance overall psychological resilience, enabling individuals to effectively cope with stressors and adversity.

In further research conducted by House, Landis, and Umberson (1988) demonstrated that individuals with limited social connections and weaker social support networks experienced higher rates of psychological distress and were more susceptible to mental health issues. In contrast, individuals with strong social ties and robust social support systems exhibited better mental health outcomes and greater psychological well-being.[House et. al., 1998]

Recognizing the value of social interaction underscores the need to

foster meaningful connections, prioritize social engagement, and nurture an environment that embraces and harnesses the power of human interaction for the betterment of individuals and society as a whole.

Recent Changes in Social Interaction

Over the years, social interaction has undergone significant changes due to various factors, including technological advancements, globalization, and shifts in societal norms. The advent of the internet and social media platforms, for instance, has revolutionized the way we interact with others. The digital age has brought about new forms of communication and socialization, allowing people to connect across geographical boundaries and engage in virtual communities. This has expanded the possibilities for social interaction, but it has also raised concerns about the quality and authenticity of these interactions.

Sherry Turkle, in her books, offers a comprehensive examination of the impact of technology on our social lives, shedding light on how our growing dependence on digital devices and virtual platforms has shaped our relationships. Turkle presents a paradoxical shift in social interactions engendered by technology. While technology promises enhanced connectivity and constant communication, it simultaneously engenders a sense of detachment and isolation. Through extensive research, Turkle explores how the proliferation of smartphones and social media platforms has altered the very fabric of our interactions, leading to a phenomenon she terms as “being alone together.” In this state, individuals may physically coexist but find themselves emotionally distant and disconnected within their relationships.[Turkle, 2011] One of the key aspects Turkle highlights is the influence of technology on identity formation and self-presentation. She delves into the ways in which social media platforms encourage individuals to meticulously construct their online personas, meticulously crafting idealized ver-

sions of themselves while concealing vulnerabilities and complexities. This curated self-image often fosters a profound disconnection from one's authentic self and hampers the development of genuine, meaningful connections with others.[Bolter, 1997]

Furthermore, Turkle delves into the impact of technology on our ability to empathize and comprehend the experiences and emotions of others. She argues that the immediacy and convenience of digital communication have eroded our capacity for deep listening and genuine understanding. The absence of non-verbal cues and the ability to manipulate and filter our online interactions contribute to a diminished sense of empathy and reduced accountability for our words and actions.

Other notable authors and researchers in this field can validate these findings. Sociologist Keith N. Hampton, for instance, explores the consequences of technology, particularly social media, on face-to-face interactions and social capital. His work suggests that excessive reliance on technology can lead to a decline in meaningful in-person connections and psychological distress over time.[Hampton, 2019] Similarly, psychologist Jean M. Twenge's research on the "iGen" generation sheds light on the potential adverse effects of excessive technology use on mental health and the development of social skills. She highlights several key trends and characteristics observed in this generation, mainly how the lives of Gen-Z individuals have become increasingly centered around their online existence, including their relationships. The concept of meeting people in real life, or "IRL," has become outdated as the majority of their interactions occur virtually. Surprisingly, statistics reveal a significant decline in the frequency of face-to-face socializing among 12th graders. Merely one-third of them now engage in daily social outings with friends, compared to the nearly 50% reported in 2000. Similarly, the number of teenagers attending parties every month has dwindled to just half of what it was two decades ago, plummeting from a previous 70%. Another noteworthy trend observed within the

Gen-Z population is the prevalence of online friendships with individuals they have never met in person. While going to the movies or engaging in shopping trips used to be common social activities, these experiences have become increasingly rare for this generation. As a consequence, Gen-Z finds itself leading more insular lives, spending an increasing amount of time alone at home. This societal shift has given rise to what is now termed the "FOGO generation" - an acronym representing the fear of going out.[Twenge, 2017]

The insights of scholars such as Turkle, Hampton, and Twenge, converge to emphasize the necessity of critically assessing the influence of technology on our social interactions. While technology brings about remarkable possibilities, it is crucial to approach its use with a discerning eye, considering the potential drawbacks and unintended outcomes that may accompany its integration into our lives. Achieving a balance between the digital and the physical, cultivating genuine relationships, and promoting empathetic engagement within the context of an increasingly digitized world are vital aspects to navigate the evolving landscape of social interactions thoughtfully and purposefully. By adopting an attitude of wisdom and mindfulness, we can harness the benefits of technology while mitigating its potential negative impacts, thus ensuring that our social interactions remain authentic, meaningful, and conducive to human well-being.

The Balance

The rapid development of technology has undeniably had a profound impact on our social interactions and connections with others, presenting both positive and negative aspects. While it would be exceedingly challenging to imagine a life without technology, it is crucial to acknowledge the need for a balanced approach to harness its benefits and reduce its drawbacks for individual and societal development. In

addition to the authors previously mentioned, several other scholars have shed light on this topic, further emphasizing the significance of finding equilibrium in our relationship with technology.

The notion of merging online and offline realms was initially introduced by Suler (2000) as the concept of online and offline integration. Suler argues that integrating these two aspects of life can generate synergistic effects, resulting in enhanced personal development and overall well-being. He proposed six strategies for achieving integration mostly focused on the domain of relationships and related behaviors, such as including sharing offline experiences with online companions, informing offline friends and family about online activities, meeting online companions in-person, connecting offline companions with online spaces, bringing online behaviors into offline life, and translating offline behaviors into the online realm. These strategies aim to foster a deeper understanding of oneself and others, break down barriers between different aspects of identity, and create synergy between online and offline worlds. This integration perspective highlights the importance of achieving harmony and balance between the online and offline worlds, suggesting that a unified and interconnected existence is more favorable than leading separate and isolated lives.[Suler, 2000]

Another author is Nicholas A. Christakis, who investigates the impact of social networks and technology on human behavior and societal dynamics. His book “Connected: The Surprising Power of Our Social Networks and How They Shape Our Lives” (2009), explores the influence of social networks on human behavior and the interconnectedness of our social interactions, both online and offline.. He emphasizes the influential role of social networks in shaping our behavior, attitudes, and well-being, and emphasizes the need for mindful engagement with technology to maintain social cohesion and positive interpersonal relationships. Drawing on extensive research and studies, the author reveals the intricate interplay between our online and offline

interactions, highlighting how these networks shape our attitudes, beliefs, and actions. The book delves into the power of social influence, showcasing how our connections with others can influence our behavior and decision-making processes. It explores how ideas, behaviors, and emotions can spread through social networks, leading to ripple effects that impact not only individuals but also entire communities. “Connected” challenges the notion that online interactions are inherently less meaningful or genuine than offline interactions. It emphasizes the importance of recognizing the complex interdependence between our online and offline networks and how they shape our lives. It also provides valuable insights into the power of social networks and their impact on individual and collective behavior. The book highlights the need to understand and navigate the complex dynamics of our interconnected world to foster positive social change.[Fowler et. al., 2009]

In order to achieve the balance between the online and offline, we first need to recognize the influence of our online interactions and be mindful of our engagement with technology, because maintaining positive interpersonal relationships is crucial for social cohesion. We also need to challenge the notion of online interactions, realize that online interactions are not inherently less meaningful or genuine than offline interactions. Understanding the interplay between online and offline interactions can help us shape our attitudes, beliefs, and actions and make us understand how our connections with others can impact our behavior and decision-making processes. It is crucial to grasp the intricate interdependence between our online and offline networks and their profound influence on our lives.

Serendipitous Social Interaction

Serendipity, the captivating fusion of chance and insight, extends its influence beyond online and offline discoveries to encompass our social interactions. It breathes magic into ordinary encounters, transforming them into extraordinary moments of inspiration and personal growth. Serendipity, defined as the unanticipated occurrence of remarkable discoveries or meaningful connections, possesses the power to transcend the boundaries of planned interactions and ignite unforeseen synergies. Whether it be an impromptu conversation at a social gathering or an unplanned encounter during a journey, these chance interactions hold immense potential to unveil shared interests, passions, and collaborative opportunities that would have otherwise remained hidden. The effects of serendipity on our social interactions are profound. Above all, it expands our horizons and broadens our perspectives. By encountering individuals from diverse backgrounds, experiences, and knowledge domains, serendipity grants us a glimpse into new worlds and fresh ideas. It dismantles our preconceived notions, fostering personal growth and nurturing empathy as we navigate through the intricate tapestry of human connections.

Moreover, serendipity catalyzes innovation and creativity. Chance encounters can kindle unexpected collaborations, giving rise to groundbreaking projects and ideas. The convergence of diverse perspectives, spurred by serendipitous encounters, often sparks novel approaches that transcend conventional boundaries, igniting a creative flame that propels innovation forward.[Radziwill, 2013]

Designing for Serendipity

However, in our digitally driven world dominated by machine learning and personalized content, designing for surprise, unexpectedness, and the unsought becomes imperative. Current digital tools and systems,

driven by the pursuit of relevance and financial success, tend to prioritize safe and predictable experiences tailored to users' past habits and preferences. This backward-looking approach leads to book recommendations based on previous reads, video suggestions based on past watches, and songs curated to align with prior listening choices. Unfortunately, this approach squanders the true potential of digital mediums, limiting their capacity to genuinely enrich our lives.

To overcome these limitations, digital systems must be intentionally crafted to embrace unpredictability and enable the discovery of the unsought and unforeseeable. They should challenge and surprise us, delivering value not only to end users but also to the industry as a whole by expanding the reach and potential of interactive platforms.[Melo et. al., 2017] Such designs enhance user experiences, increase engagement, and, most importantly, unlock the transformative power of serendipity. By breaking free from the confines of our preferences, these meticulously crafted systems open doors to unexpected connections, fostering personal growth through novel and exciting encounters.

In the words of John Hagel III, renowned author and scholar in his book "The Power of Pull: How Small Moves, Smartly Made, Can Set Big Things in Motion," and echoing the sentiments of Steven Johnson in "Where Good Ideas Come From: The Natural History of Innovation," embracing and nurturing serendipity is not just a desire but an essential pathway for individuals and organizations to thrive in an increasingly complex and interconnected world. Understanding the significance of serendipity and intentionally fostering environments that encourage its occurrence enable us to unlock untapped potential, ignite innovation, and create new avenues for growth and success.[Jesus, 2019]

Designing for serendipity often involves a deliberate focus on promoting casual collisions. The underlying idea is that by fostering more unexpected encounters, the likelihood of serendipitous conversations

and discoveries increases. Various strategies can be employed to facilitate these interactions, often in the form of intentional bottlenecks. These bottlenecks are designed to create situations where individuals are compelled to slow down and remain close to others, ultimately encouraging conversations that may lead to exciting discoveries. The desired outcome is akin to a carefully orchestrated domino effect, where each encounter sets off a chain reaction of serendipitous events.

A great example of how the casual collisions can have an effect on us is its use within an organizational context. By creating opportunities for individuals from different departments, teams, or disciplines to come together, organizations can foster an environment that encourages the free flow of ideas and knowledge exchange. These intentional bottlenecks may manifest as communal spaces, shared resources, or even designated meeting areas designed to facilitate chance encounters. The aim is to break down silos and create spaces where unexpected conversations can occur, increasing the likelihood of innovative solutions and collaborative breakthroughs.

One interesting project on this topic is Nesta's Randomised Coffee Trials (RCT) initiative.[Nesta, n.d.] An unique opportunity for Nesta staff members to receive a randomized match with another Nesta colleague each week, followed by an invitation to enjoy a casual coffee together. Some Randomized Coffee Trials (RCTs) may revolve entirely around work-related matters, while others may delve into personal interests and experiences. By intentionally fostering these serendipitous encounters, Nesta encourages its staff members to connect on a more personal level, beyond the boundaries of their usual work interactions. These informal conversations have the potential to unlock new insights, forge unexpected connections, and promote a deeper sense of community within the organization. RCTs give staff from across the organisation an 'excuse', an opportunity to meet, catch up and build connections with the people around them.

This highlights the immense potential for serendipity to thrive within social settings, underscoring its inherent value and significance. By wholeheartedly embracing the unexpected, dismantling barriers, and nurturing meaningful connections, we cultivate an environment conducive to the flourishing of serendipity. In doing so, we unlock the possibility of transformative outcomes and enhance the human experience, enabling us to embark on a journey of profound discovery and enrichment.

Social Matching Applications

Interactive technology has played a pivotal role in facilitating and supporting social interaction through various approaches, including social matching, interactive installations, and awareness applications. Social matching systems, for instance, recommend or pair individuals together based on shared attributes and interests.[Terveen et. al., 2005] These applications can be online, using web interfaces to connect remote users, or context-aware, utilizing mobile applications that consider physical location or proximity. Matching criteria can range from user-defined profiles to mutual friends. Examples of social matching applications include *Serendipity*, which matches users based on proximity and profile preferences, and *Social Net*, which uses encounter frequency between users and mutual friends as a matching algorithm. These systems have garnered significant attention in both academic research and industry, particularly in the context of dating services and professional networking events. However, such systems primarily rely on matching algorithms that prioritize similarities in profile attributes and interests, resulting in a phenomenon known as *homophily*. [Kandel, 1978] Homophily limits people's social connections, attitudes and opinions. We view this approach as limiting, as it confines users to

interact solely with those who possess similar interests, rather than affording them opportunities to expand their interests and perspectives.

Proximity

The promotion and facilitation of social interaction among individuals in physical proximity have emerged as a thriving area of research in the fields of human-computer interaction. Studies have already demonstrated that collecting game-related content from nearby strangers not only encourages exploration of the real world but also elicits delightful surprises and fosters face-to-face interactions.[Paasovaara et. al., 2016] Proximity-based applications are recognized as having the potential to serve a range of domains, encompassing both leisure and business contexts. Plenty research papers delve into the untapped potential of proximity-based applications in fostering social interaction among nearby individuals. Some authors claim that the presence of unfamiliar individuals in urban environments presents a vast yet challenging design space.[Paasovaara et. al., 2016] In sprawling cities, the sense of connection among people has diminished, a sense that remains prevalent in smaller villages and close-knit communities. This leads us to question whether information technology can be harnessed to encourage people to embrace the vast social opportunities that surround them. After all, social interaction is fundamental to human well-being, providing companionship, and a sense of connectedness, and serving as the bedrock for knowledge sharing, cultural development, and community quality.

“Nearby Strangers”[Paasovaara et. al., 2016]

Engaging in meaningful conversations with strangers who are near us is of paramount importance for our overall well-being and social connections. It highlights the profound significance of social interaction

in promoting both physical and mental health and fostering happiness. By initiating dialogues with nearby strangers, we can establish a sense of belonging and companionship, nurturing a deeper bond with our communities. Unfortunately, people often adopt behaviors that hinder such interactions, such as isolating themselves with headphones or being absorbed in their smartphones, or actively avoiding eye contact. This avoidance behavior can be attributed to pessimistic beliefs concerning others’ receptiveness to conversation, underestimation of positive outcomes that may arise from these exchanges, and skepticism regarding the initiation and maintenance of engaging discussions. However, research indicates that these apprehensions are frequently unfounded. Strangers are generally more open to conversation than initially presumed, and the outcomes of these interactions tend to exceed expectations.[Wald et. al., 2022]

Promising interventions have emerged, aiming to counter these negative perceptions and shift attitudes toward stranger interaction. One effective approach was made by Gillian M. Sandstrom et al. (2022) and the work that involves engaging in repeated practice through activities like scavenger hunts. They developed an intervention involving a week-long scavenger hunt game in which participants engaged in repeated interactions with strangers. The results showed that this simple and replicable intervention significantly reduced pessimism about rejection and increased optimism about conversational ability. These positive effects lasted even after the study ended. Daily reports indicated that participants’ expectations improved progressively, highlighting the significance of repeated experiences in fostering positive attitudes toward interacting with strangers. By actively participating in such experiences, individuals can challenge their preconceived notions and gradually alter their pessimistic outlook. Consequently, these interventions help individuals develop more positive and accurate expectations regarding conversations with strangers.

More research has been done about exploring strategies to facilitate in-

teraction between nearby strangers. For example, Persson et al. (2005) conducted a field trial in 2003 with DigiDress, an application that utilized Bluetooth technology to enable users to discover, access, and comment on nearby profiles. McCarthy et al. (2004) enhanced social dynamics at an academic conference by introducing proactive displays that showcased profile information obtained from RFID tags worn by nearby participants. More recently, the rise of commercial applications, such as Yik Yak and FireChat for anonymous local communication, Badoo and MeetMe for location-based matchmaking, and StreetPass on Nintendo handhelds for the automatic exchange of game content based on proximity, demonstrates the growing interest and willingness to engage with nearby strangers.

Looking forward, we anticipate a future where technology-driven interactions with nearby strangers can encompass a broader range of possibilities. In addition to promoting face-to-face conversations, these interactions can incorporate lighter, playful, or even anonymous approaches, while still fostering positive social experiences, a sense of connection, and increased awareness of others. These objectives hold significant importance in guiding the design of meaningful and impactful interactions with nearby strangers.

Wearable Technology

In the realm of designing meaningful interactions and experiences, wearable technology emerges as a compelling solution. It has become evident that we need to transcend the limitations of mobile-based interactions to forge serendipitous connections with others. Wearable technology encompasses a diverse array of devices, ranging from those seamlessly integrated into our attire to those loosely attached. These

innovative devices hold the power to revolutionize how we engage with the world around us and elevate our daily existence. By seamlessly merging technology with our physical selves, wearables offer a gateway to a more immersive and enriched human experience.

The advancement of sensing technology and the miniaturization of processors have played a crucial role in the emergence of ubiquitous and intelligent wearable devices, exemplified by fitness trackers and smartwatches.[Ometov et. al., 2021] These devices have seen remarkable progress, becoming equipped with an extensive range of sensors including accelerometers, GPS, heart rate monitors, and even skin conductivity measures. The primary objective of these sensors is to facilitate personal health monitoring and support fitness-related activities. Extensive literature exists on the validity, suitability, and acceptance of wearable technology in the realms of personal health informatics, behavior change, and medical assistance.

However, our focus lies in exploring the utilization of wearables beyond healthcare applications. The projected growth of the wearable technology market indicates that within the next five years, it will expand exponentially. Notably, entertainment devices are expected to outpace fitness-related wearables, emerging as the dominant product category. [Hansel et. al., 2018] This shift in consumer demand signifies a significant opportunity to delve into the potential of wearables as a means of enhancing social experiences. By harnessing the capabilities of wearable devices, we can envision an immersive and interactive future where entertainment takes center stage, offering novel and captivating experiences to users.



Fig. Perspective on the development of personal wearable ecosystems.

Wearable Technology and Social Interaction

The current research on the connection between wearables and social interactions is relatively scarce. However, it is crucial to acknowledge and explore the multifaceted nature of wearables. While their primary function is to provide personal cognitive feedback on physical activity and bodily functions, wearables also have the potential to foster social interactions. This stems from the fundamental human need for social bonds and a sense of belonging.

Social interactions play a pivotal role in shaping individuals' engagement with physical activities, exerting influence over their behaviors and interpretations of their experiences. Wearable technology, with its unique capabilities, enhances these social interactions by creating opportunities for ongoing negotiations of appropriateness and shared understanding in diverse contexts. By facilitating these interactions, wearables contribute to the establishment of a sense of belonging and social recognition, which address the fundamental psychological needs of individuals. [Girginov et. al., 2020] It is important to note that

social interactions possess various properties that motivate and shape behaviors, as well as structure the overall process and organization of interactions over time and physical space. These properties add depth and complexity to the dynamics of social interactions, further emphasizing their significance in the realm of wearables.

While the current body of research is limited, recognizing the potential of wearables to facilitate social interactions opens up a vast avenue for exploration. Understanding and harnessing the interplay between wearables and social interactions can lead to innovative developments that not only enhance personal experiences but also provide valuable insights into human behavior and social dynamics. Further research in this area can shed light on the transformative impact of wearables, paving the way for new possibilities in creating meaningful connections and improving overall well-being.

Emotional Technologies

Designing Emotional Technologies is a material-led practice where human engagement, iterative prototyping, and embedded collaboration in the pursuit of humanizing wearable health technologies.

Leah Heiss serves as an exemplary figure in the pursuit of humanizing wearable health technologies. Her primary objective is to challenge the stigma attached to such devices and transform them from medical aids into coveted accessories. [Heiss, 2018] Heiss draws inspiration from mineralogy collections to shape the design elements of texture, color, finish, and form, resulting in emotionally impactful technologies with a precious aesthetic. In her Ph.D. thesis, she delves into the concept of "emotional technologies," encompassing both design outcomes and the design process itself. Design outcomes refer to the finished technologies, such as the Smart Heart cardiac monitor necklace and Facett hearing aid, while the design process involves the creation of iterative

prototypes. These prototypes transcend their status as mere artifacts, instead serving as living records of interactions, conversations, and problem-solving that transpire throughout the projects. By engaging in early and frequent prototyping, Heiss successfully navigates various obstacles, including cultural, social, and technological challenges.



Fig. Facett hearing aid



Fig. Smart Heart cardiac monitor

Heiss's contributions to design practice encompass several key ideas. Firstly, to destigmatize wearable health technologies, a shift in aesthetic categories is imperative. Secondly, the involvement of design throughout the entire technology development process is vital in creating desirable wearable health technologies. Thirdly, prototypes actively foster relationships and promote engagement from users and team members. Lastly, a profound understanding of individuals' emotional experiences is essential to the creation of truly impactful wearable health technologies. In essence, Heiss's work underscores the significance of humanizing wearable health technologies through a meticulous design process, interdisciplinary collaboration, and a steadfast focus on emotional engagement. By embracing these principles, Heiss strives to enhance the lives of users and reshape the perception of wearable health technologies.

Inspired by Leah Heiss's pioneering work, we are driven to delve deep-

er into the realm of humanizing technology, specifically focusing on wearable technology. Our goal is to reshape the perception of wearables, shifting them from being perceived solely as medical devices to everyday tools that enrich individuals' lives, with a strong emphasis on their social implications. By exploring the intersection of technology and social interactions, we aim to unlock the full potential of wearables as powerful tools for enhancing social connections. We endeavor to create a paradigm shift, where wearables seamlessly integrate into people's lives, empowering them to lead more meaningful and socially enriched lifestyles. Through innovative design approaches and interdisciplinary collaboration, we aspire to transform wearables into versatile companions that enhance human experiences and foster a sense of connection and belonging in the digital age.

Poetic Approach

"We are living in a time obsessed with actuality. People like immediacy, haste and actuality and poetry is, I repeat, timeless. This means it doesn't correspond to what's happening. It is out-of-the-moment"
— Jean Cocteau (Poet, visual artist, designer, critic)[Ravi, 2021]

Poetics provides an opportunity for design to revisit unresolved narratives, open-ended possibilities, and unfinished tales that stimulate meaningful conversations. It reintroduces a sense of novelty, spirituality, and a distinctive rhythm into design practice, fostering profound introspection, heightened sensitivity to experiences, and a greater inclination towards expressive and experimental approaches.

As highlighted by Cocteau, poetry transcends time and is not merely a translation of our present moment. Its reflective and fantastical nature enables it to surpass and transform reality, making it a potent medium

for the emancipation and liberation of anyone or anything it portrays.

Poetic Interaction

Poetic interaction surpasses mere functionality or usability by establishing a profound and meaningful connection between a person and an object. It resonates with individuals on an emotional and sensory level, evoking immediate resonance while continuing to inspire and engage long after the interaction concludes. This form of interaction fosters reflection, heightens awareness, and cultivates a state of mindfulness.

Unlike interactions that rely on force or external stimuli to provoke a response, poetic interactions are often subtle, yet mindful. They manifest in everyday experiences, such as the art of preparing a meal or employing a well-crafted tool. These interactions captivate the senses, evoke emotions, and create a captivating world for active participation. The essence of a poetic interaction comprises three primary elements: honesty, mindfulness, and meticulous attention to sensory detail. Honesty in design entails maintaining integrity with the business vision, consumer needs, and choice of materials. Mindfulness encompasses being fully present at the moment, cultivating heightened awareness of the task at hand, and establishing a profound connection with the interaction. Attention to sensory detail involves thoughtfully considering the sensory dimensions of the experience—sight, touch, smell, and sound—and leveraging them to craft a more engaging and immersive interaction.[Kolko, 2011]

However, Lin et al. approached poetic interaction design from a distinct perspective, defining it as a design approach that conveys an image with ambiguous expressions, triggering flashbacks rooted in personal experiences.[Lin et. al., 2011] According to their viewpoint, embracing uncertainty and ambiguity is crucial in communicating a poetic image within interactions. The successful transfer of such an

image relies on the participants' inherent ability to perceive and interpret it holistically, emphasizing the role of gestalt. Therefore, poetic interaction design necessitates the designer's skill in creating implicit expressions that invite users to engage and interpret them using their common sense and personal experiences. This approach stimulates a process of sense-making, reflection, and active participation, leading to a more immersive and meaningful user experience.

The exploration of poetic interaction in design is still in its early stages, but in the paper by Patrizia Marti, she delves into a selection of compelling showcases that exemplify the potential of poetry in design. By examining several projects that drew inspiration from poems, Marti demonstrates how participants were able to create meaningful interactions.[Marti, 2015] The showcased examples illustrate that poetry can serve as a guiding framework for designing experiences that are immersive, aesthetically pleasing, and mindful. One recurring aspect among these showcases is the embodiment of sensory perception, action, and emotional engagement. This is achieved, in part, through the careful consideration of material aesthetics and its intentional utilization in the design process. It also illustrated that by embracing the poetic aspects of design, designers can unlock new possibilities for creating transformative and immersive experiences that resonate deeply with individuals.

Ultimately, poetic interaction design offers a path toward a more holistic and human-centered approach to design and it possess the potential for creativity, engagement, and transformation. It transcends mere functionality, aiming to provide individuals with a profound and meaningful experience. By integrating elements of poetry and language into their design, practitioners can create interactions that effectively communicate and evoke emotions.

Poetic Wearables

Building upon our comprehensive analysis of wearable technology, we can now present compelling examples of existing wearables that embody a poetic approach to design, surpassing mere functionality to establish a profound emotional connection. These wearables transcend their utilitarian purpose and invite users into a realm of heightened sensory experiences and deep emotional engagement. By embracing a poetic design ethos, these innovative devices transcend their physical limitations and resonate with users on a profound and meaningful level, enriching their lives in unexpected and transformative ways.

An exemplary illustration of this concept is the CaT Pin, a discreet and affordable wearable designed specifically to detect and address loneliness. Taking the form of a lapel pin or brooch, the CaT Pin utilizes conversation as a crucial indicator of social isolation and loneliness. Recognizing that a lack of conversation often accompanies feelings of loneliness, the CaT Pin measures the number of words spoken by the wearer per minute and compares it to a baseline figure representing healthy interaction rates. When the wearer's word count falls below a certain threshold per hour or per day, the CaT Pin triggers an automated text message. This message can be sent to a loved one, a volunteer phone service, or a healthcare professional, serving as a gentle reminder for them to reach out and initiate a conversation. By leveraging this innovative mechanism, the CaT Pin aims to alleviate the experience of loneliness and foster meaningful social connections. In addition to its practical function, the CaT Pin serves as a mnemonic device, reminding the wearer of their individuality and personal journey.

A noteworthy and innovative project worth highlighting is the Social Textiles, made by a group of MIT students. This wearable social network revolves around interactive t-shirts that comes to life when wearers discover shared interests. As individuals wearing these tech-

nologically enhanced garments approach within 3 meters radius of one another, a subtle buzz on their shoulder serves as a friendly alert, signaling the presence of a like-minded individual nearby. Acting upon this cue, they can identify each other and forge a connection by physically touching the other person's shirt, the fabric lights up, visually manifesting their shared interest. This tangible representation serves as a visually captivating manifestation of their newfound connection.

Overall, the CaT Pin and the Social Textiles demonstrate a poetic design approach by intertwining aesthetics, personal identity, and the power of conversation. It goes beyond its utilitarian function to create an emotional resonance with the wearer and the people in their social network. By embracing the poetic aspects of design, both projects invite a deeper level of engagement, reflection, and meaning-making, ultimately enhancing the wearer's experience and fostering a sense of connection and belonging.



Fig. CaT Pin



Fig. Social Textiles

Literature Review Summery

This extensive literature review delves into various interconnected themes, including the value of social interaction, the impact of technolo-

gy on social interactions, the concept of serendipitous social interaction, the potential of wearable technology for enhancing social interactions, and the role of emotional engagement and poetic interaction in design. The review begins by emphasizing the importance of social interaction for human well-being, highlighting its role in shaping identities, relationships, and experiences. It discusses how social interaction contributes to cognitive development, emotional intelligence, and mental health. However, it also acknowledges the impact of technology on social interactions, noting the potential for detachment and isolation in online relationships. The review emphasizes the need for balance in integrating technology into social interactions and cites various authors who have explored this topic.

One aspect of social interaction that the review focuses on is serendipity. It discusses the concept of serendipitous social interaction and its ability to broaden perspectives, foster innovation, and promote personal growth. The review suggests designing digital systems that embrace unpredictability and enable the discovery of the unsought, emphasizing the importance of intentionally fostering environments that encourage serendipitous encounters with strangers in order to unlock untapped potential and drive innovation.

Moving forward, the review explores the realm of wearable technology and its potential for enhancing social interactions. It acknowledges the limited research on the connection between wearables and social interactions but highlights the multifaceted nature of wearables and their ability to foster social bonds and a sense of belonging. The review emphasizes the need to move beyond healthcare applications and focus on the social implications of wearables. Understanding and harnessing the interplay between wearables and social interactions can lead to innovative developments and provide valuable insights into human behavior and social dynamics.

In addition to wearable technology, the review introduces the concept of a poetic approach to design. It discusses how poetry transcends time, stimulates meaningful conversations, and reintroduces novelty

and spirituality into design practice. The review highlights poetic interaction as a design approach that establishes profound connections between people and objects evokes emotions, and fosters reflection and mindfulness. It emphasizes the elements of honesty, mindfulness, and meticulous attention to sensory detail in crafting poetic interactions.

Overall, this literature review calls for the intentional fostering of environments that encourage serendipitous social interaction, unlocking untapped potential and driving innovation. By considering the themes of social interaction, wearable technology, and poetic interaction, designers can create immersive and meaningful experiences that enhance human well-being, promote social connections, and reshape the perception of technology in everyday life. Through interdisciplinary collaboration and innovative design approaches, wearables can transform into versatile companions that enrich human experiences and foster a sense of connection and belonging in the digital age.

Bolla

Concept Selection

After conducting comprehensive research and gathering valuable insights from extensive literature and users of existing services, we identified key findings that provided clarity and direction for the development of our concept.

Firstly, the research underscores the critical importance of preserving authenticity and meaningfulness in social connections when designing technology-driven solutions. This realization highlights the need to prioritize the human aspect of interpersonal interaction, ensuring that technology enhances rather than detracts from genuine connections. Secondly, the analysis of existing services presented a unique opportunity to bridge the gap between digital and physical experiences by creating a solution that combines the convenience of technology with the richness of in-person interactions. The survey also emphasized the significance of organic connections and raises concerns about algorithmic bias, urging the need for new algorithms that address bias and promote diversity.

Initial Idea

With a clear focus on our priorities, the first ideas started to arise. Recognizing the importance of preserving meaningfulness in social connections and prioritizing the human aspect of interaction, our first

concept emerged—a mobile app designed to facilitate organic connections. Our vision for this app was to foster conversations, encourage genuine human togetherness, and strike a balance that avoids unnecessary over-reliance on technology.

The core concept of the app revolves around location-based interactions and complete user anonymity, aiming to create a bias-free platform that strengthens in-person encounters and experiences. The app’s unique value lies in its departure from algorithmic matching. Instead, it empowers users to exercise their agency by allowing them to choose individuals based on their interests and preferences. Leveraging current location and user-defined intentions upon starting the app, it provides a platform where users have the freedom to connect with those who intrigue them the most. By relinquishing reliance on algorithms, the app embraces the spontaneity of human connection and encourages users to forge meaningful connections based on their instincts and immediate circumstances.

With this app our goal was to restore the spontaneity, curiosity and excitement in the everyday life which are a very meaningful part of interpersonal interactions as well as to work in contrast with the existing solutions that utilize the collaborative filtering methods.

Once we established the User Flow and Information Architecture, we proceeded to enhance our concept by creating a wireframe, which we then tested with potential users. The validation we received during the testing phase was valuable, but as we delved deeper into development, we realized that we had lost sight of our overarching goal. It became evident that relying solely on an app as the primary touchpoint of our service contradicted our initial problem statements. We recognized the paradox of using technology that often disconnects people from the present moment, and this realization significantly impacted our motivation to continue solely with an app-based solution.

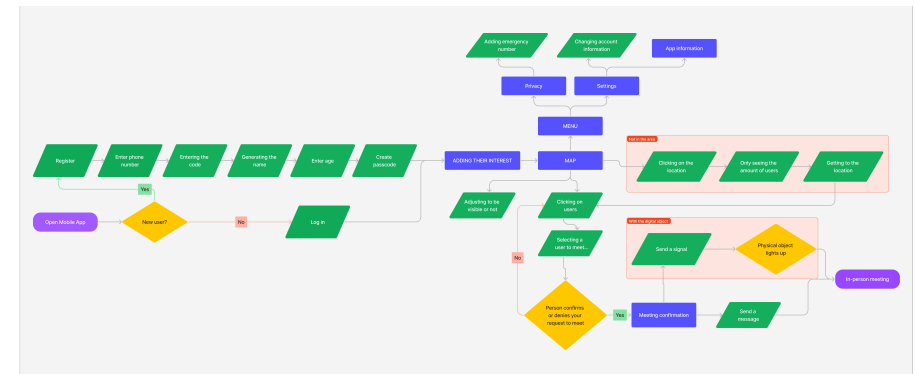


Fig. User Flow

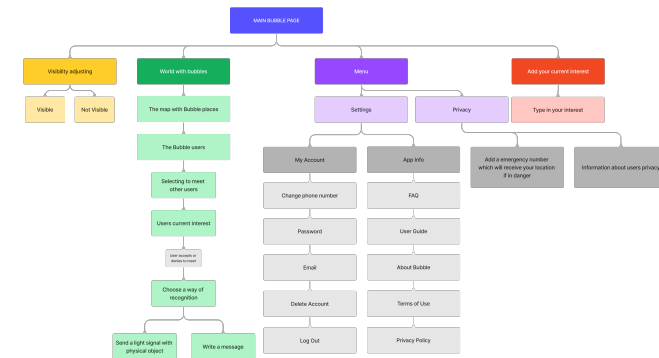


Fig. Information Architecture

Reiteration

As we acknowledged our mistake and embarked on reevaluating our initial idea, new possibilities for enhancement started to emerge. A crucial question that arose during this process was: “What forms of human social interactions can be harnessed in our scenario to ignite genuine interpersonal connections?” Motivated by this query, we dove back into research, seeking alternative avenues to foster meaningful interactions and strengthen the sense of togetherness among individuals. Our objective was to explore diverse approaches that could effectively

encourage people to engage with one another and cultivate authentic connections.

We started with an exploration of the profound impact that the global crisis has had on our daily lives, particularly on our social interactions. A compelling illustration of this impact is the global, sudden, and all-encompassing changes that have reshaped the dimensions of time, space, location, media, and communication channels within our social realm, these changes have effectively “re-set the parameters of the interaction order” across various levels.[Adami, 2020] During the Covid-19 pandemic there was the need for physical separation, what made human interaction and engagement with the world restructured in both physical and digital environments. The physical world has become restricted and regulated, with visual markers and redesigned public spaces emphasizing the metaphorical “bubble” concept. The pandemic has reshaped our access to the world, shifting it from physical travel to virtual screens. While digital access opens up opportunities to participate in events and activities previously inaccessible, such as live concerts or workshops in distant locations, the limitations on physical mobility result in a decline in social serendipity. Meaningful encounters with strangers become more challenging, and our interactions with others are often confined to audio-visual means. This highlights a significant shift in our social dynamics brought about by the pandemic.

On further research we have found why engaging in meaningful encounters with strangers matter. While such conversations may seem insignificant compared to deep friendships, they can have a profound impact on our lives. Just as a haiku or a single sentence can evoke powerful emotions, these minor interactions can touch us in unexpected ways. A small sympathetic chats matter because many people are often not far from sadness or despair. A brief, kind exchange has the potential to offer comfort and empathy. It emphasizes that even in the

most minuscule dialogue, there can be an abundance of sympathy and fellow-feeling. By acknowledging someone’s struggles or sharing a moment of understanding, we can provide a glimmer of hope and potentially make a difference in someone’s life.[The School of Life, 2022]

Furthermore, upon realizing that our initial concept relied on conventional digital communication systems such as web and mobile apps, we recognized the need to redirect our focus toward restoring in-person experiences. This led us to delve into the exploration of wearable technology and its potential to humanize face-to-face interactions. By shifting our attention to wearables, we aim to create a more intimate and authentic connection between individuals, fostering a sense of presence and enhancing the meaningfulness of in-person interactions. Wearable technology offers a unique opportunity to bridge the gap between the digital and physical realms, allowing us to create a product that seamlessly integrates into everyday life while prioritizing genuine human connections.

The insights we gained had a profound impact on the development of our project, fueling our desire to break free from the social “bubble” created by the health crisis. This led us to formulate our creative design brief as well as the final concept, which aims to inspire people to engage in meaningful interactions with strangers in a way that enhances social serendipity that we are fighting to preserve.

Creative Brief

We used a creative brief as the foundation for the development of our product. It not only set the direction but also acted as a commitment throughout the design process. In the preliminary design research, our goal was to gain a comprehensive understanding of what is truly valu-

able, desirable, and accessible to the end user. This involved identifying their needs and uncovering potential opportunities. However, it goes beyond that. We also strived to delve into their genuine willingness and motivation to engage with and adopt the solution we are crafting. By anticipating user behavior and preferences, we can ensure that the design aligns perfectly with their expectations, resulting in a solution that truly resonates and fulfills their needs.

Who?

The product caters to individuals who have grown weary of the repetitive and exhausting nature of existing meeting apps, which fail to foster genuine connections. These users yearn for a departure from their smartphones and the overwhelming influence of apps that seem determined to retain their attention. Our product is designed for curious souls who seek a return to reality and crave a sense of belonging in a fresh community. It embraces those who are open to surrendering themselves to serendipitous encounters and embraces the potential for new, meaningful connections.

What?

The proposal is to design a wearable product that would foster serendipitous connections between strangers, in order to strengthen the bonds of society. This product would emphasize the power of genuine human interactions in the physical realm, by seamlessly integrating into everyday life. By stepping away from the conventional digital approach of an mobile app, the wearable device would transform chance encounters into memorable experiences, fostering serendipity and unlocking the untapped potential of face-to-face connections.

Why?

The product seeks to address the negative consequences of technology, such as loneliness, and reevaluate its role in fostering genuine connections. By prioritizing meaningful interactions and community-building, the product aims to redirect the trajectory of technology and promote stronger social bonds. The ultimate goal is to foster a sense of belonging, purpose, and interconnectedness in a world where technology serves as a tool for human flourishing rather than isolation.

How?

By designing the product to be a wearable, we have enabled the true in-person experience, adding even greater value for the user. This decision enhances the product's usability for meeting strangers, amplifying the serendipitous nature we aim to preserve. Making it oriented towards serendipity will create encounters that are not only meaningful but also unforgettable, leaving a lasting impact on the individuals involved.

Where?

The primary domain of influence for the device centers around public open spaces, where individuals naturally navigate through their daily lives. Given its inclination towards serendipitous encounters, the device needs to be utilized in situations that foster such interactions. Designing for serendipity requires a deliberate emphasis on promoting casual collisions, acknowledging that unexpected encounters are more likely to lead to serendipitous conversations and discoveries. To achieve this, intentional bottlenecks can be utilised. These bottlenecks that create scenarios where individuals are encouraged to slow down and remain close to others, creating an environment that encourages conversations that may lead to exciting discoveries.

Concept Development

The Big Idea

With a clear understanding of our goals and objectives, we embarked on the journey of further developing our concept, leading us to the idea of Bolla.

Bolla is a wearable device that transforms the way strangers connect. Departing from the traditional app-based approach, Bolla places a strong emphasis on fostering authentic human interactions in the physical world. Seamlessly integrated into our users' everyday lives, this device transcends random encounters, transforming them into unforgettable moments filled with serendipity and the untapped potential of face-to-face connections.

To facilitate these meaningful connections, users simply enter their desired information into the accompanying app, which then matches them with individuals who share similar interests. Throughout the day, subtle haptic feedback alerts users when they are in proximity to someone they've matched with, creating opportunities for spontaneous interactions and genuine connections.

After that, it is up to the users to initiate meeting and embark on building new relationships or engaging in friendly conversations.

Value Proposition

Given our commitment to maintaining a human-centric approach, the next step we focused on was on defining the value proposition of the product, a pivotal step in the development of a successful and impact-

ful offering. The value proposition served as the bedrock upon which the entire product was built, providing a solid foundation that guided its development, marketing, and overall strategic direction. Through a clear and compelling articulation of the distinct value and benefits the product brings to customers, a well-defined value proposition ensures that the product effectively addresses customer needs and establishes a strong position in the market.

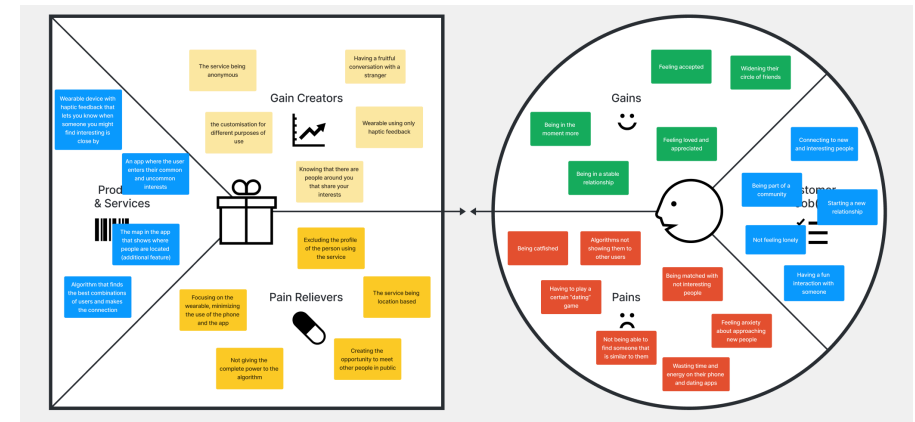


Fig. Value Proposition Canvas

Having previously done the survey and the extensive research helped us organise a Value Proposition Canvas.

The canvas consists of two main components: the User Profile and the Value Map. The User Profile focuses on gaining a deep understanding of the target customers, their jobs, pains, and gains. It helps identify their specific needs, challenges, and aspirations, allowing us to develop a customer-centric approach.

On the other hand, the Value Map focuses on articulating the value that the product offers to the user. It outlines the features, benefits, and solutions that address the user's needs identified in the User Profile. By mapping out the unique value proposition, we can differentiate ourselves from competitors and create a compelling offering that meets customer expectations.

In our Value Proposition Canvas, we prioritized our user's jobs, focusing on the tasks, activities, or problems they are trying to accomplish or solve. We identified their desire to connect with new and interesting people, the need for a sense of belonging and community, and the goal of reducing loneliness. This allowed us to gain a deeper understanding of their specific needs and objectives. Next, we examined the challenges, frustrations, and obstacles our users encounter or want to avoid. We looked at the negative aspects or pain points they experience, such as wasting time on existing meeting or dating apps, feeling anxious when meeting new people or facing discrimination from algorithmic systems. By acknowledging these pain points, we could develop Pain Relievers that alleviate or eliminate these negative aspects and provide relief to our users.

In parallel, we explored the desired outcomes, benefits, and aspirations of our users. We highlighted the positive aspects, benefits, and gains they seek to achieve or experience through our product, including feelings of acceptance, love, and appreciation, gaining knowledge from new connections, and being more present in the moment. Understanding these motivations and drivers allowed us to design a solution that effectively addresses their needs. Building upon the pain points, we developed Pain Relievers that specifically target and alleviate the negative aspects our users face. For example, we shifted our focus from traditional apps to a wearable device, removing user profiles from the device to reduce the algorithm's power over their experience.

Subsequently, we defined Gain Creators, which are the elements or features of our product that deliver the desired outcomes and benefits our users seek. For instance, our wearable device provides haptic feedback to inform users when their matches are nearby, creating awareness of shared interests. Additionally, the device encourages anonymous conversations, empowering users to engage with strangers.

To deliver the value proposition effectively, we identified the specific offerings, both tangible and intangible, that users interact with and de-

rive value from. Our offerings include the wearable device with haptic feedback, the accompanying app, and additional features such as an algorithm that facilitates reasonable matches.

By carefully aligning Pain Relievers, Gain Creators, and the Products and Services we offer, we have created a compelling value proposition that addresses customer needs, relieves pain points, and delivers the desired gains. This comprehensive approach ensures that our solution resonates with our users and provides a unique and valuable experience.

Business Model Canvas

With our value proposition firmly established, we proceeded to develop the business model canvas, a crucial step in our product development journey. The business model canvas served as a powerful tool to identify and comprehend the fundamental elements of our "business," providing clarity to our value proposition and ensuring coherence among various components. By visualizing the entirety of our business model on a single canvas, we gained valuable insights into potential gaps, risks, and areas for improvement. This holistic view fostered innovation and paved the way for the creation of a product that is both sustainable and profitable.

The business model canvas allowed us to analyze each building block systematically, uncovering opportunities for optimization and growth. We meticulously examined our customer segments, channels, customer relationships, revenue streams, key activities, key resources, key partners, and cost structure. By critically evaluating these elements, we gained a comprehensive understanding of how they interrelated and contributed to our overall business model.

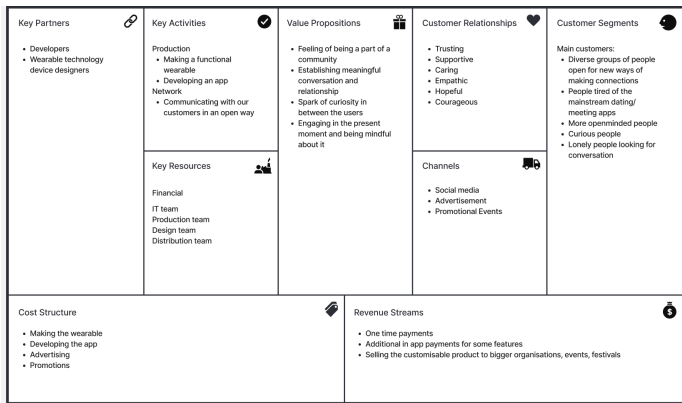


Fig. Business Model Canvas

Concept Poster

In order to provide more clarity and to better visualize our concept we decided on making a concept poster. A concept poster plays a crucial role in effectively conveying the core concept and key features of our product in a visually appealing and concise manner. By visually representing the purpose, target audience, unique selling points, and functionality of the product, the concept poster ensures that everyone is aligned and on the same page regarding the vision and goals.

The concept poster for Bolla was designed to encapsulate the core problem we aimed to solve: fostering meaningful interactions, alleviating loneliness, and reintroducing serendipity into social encounters. By addressing these pain points, our goal was to create a sense of community and belonging. We then identified the key stakeholders, including smartwatch users, event organizers, and participants, and acknowledged their roles within the Bolla ecosystem.

To effectively communicate our vision, we presented our big idea prominently on the concept poster. Through visually engaging illustrations, we showcased the seamless interaction between users and the unique features of our product. We depicted two scenarios that exem-

Bolla

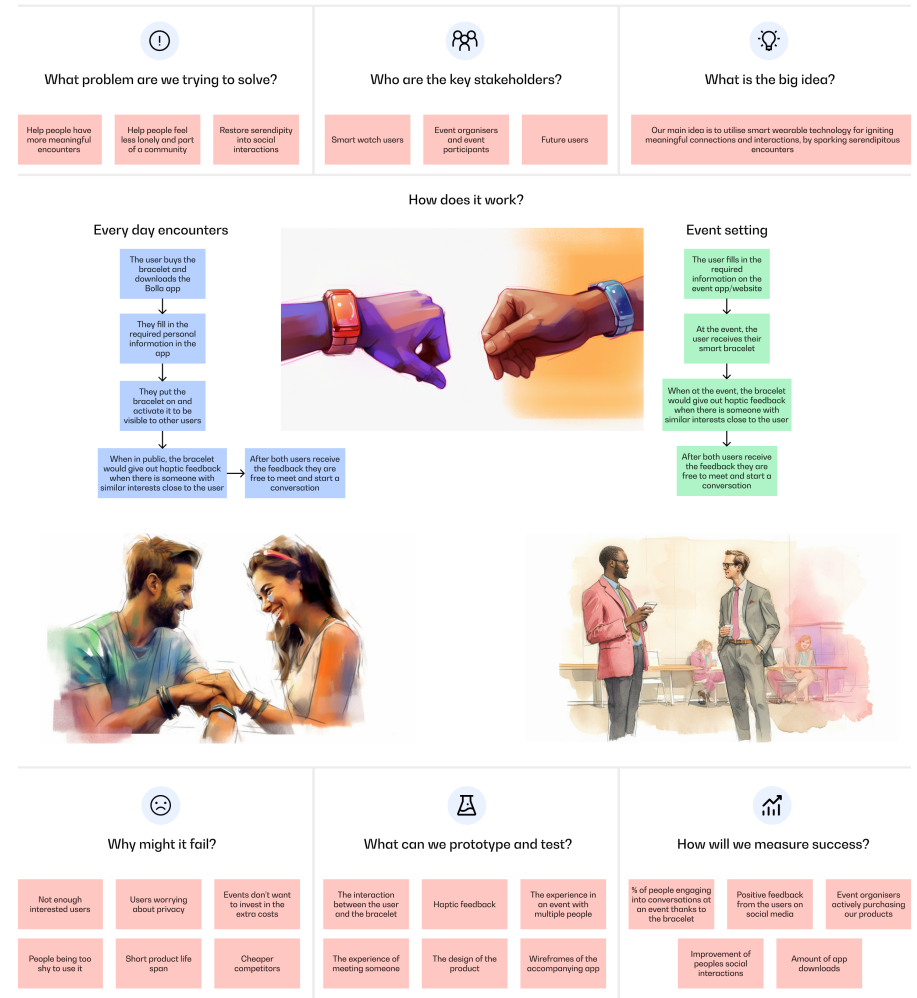


Fig. Bolla Concept Poster

plified the Bolla experience, illustrating the different ways users could engage with one another while utilizing our solution.

To ensure a comprehensive assessment, we acknowledged the poten-

tial risks and challenges that could impede the project's success. These risks encompassed factors such as generating sufficient user interest and competing against cheaper alternatives in the market. By identifying these obstacles, we were better equipped to devise mitigation strategies and contingency plans.

Looking ahead, we outlined the prototyping and testing phases as the next crucial steps in our product development journey. By listing the specific aspects we intended to prototype and test, we set a clear roadmap for iterative refinement and improvement. This approach would enable us to gather user feedback, validate assumptions, and refine the product based on real-world insights.

To gauge the success of our endeavors, we established key metrics for measuring our progress. These metrics were designed to assess the effectiveness of our solution in addressing user needs and achieving our desired outcomes. By setting measurable goals, we aimed to track user engagement, satisfaction levels, and community growth to ensure that our product was making a meaningful impact.

By encapsulating these essential components in our concept poster, we created a comprehensive and visually appealing representation of the Bolla concept. It effectively conveyed our vision, outlined potential risks and mitigation strategies, highlighted areas for prototyping and testing, and established metrics for success measurement. The concept poster served as a guiding framework, aligning the team and stakeholders while providing a tangible visual reference for the product development journey.

User Journey

We have finalized the development of our user journey, a crucial step that will serve as a compass for our future tests and guide us in enhancing the user experience. By mapping out the various touchpoints and

interactions users have with our product, we gained valuable insights into their needs, expectations, and pain points throughout their journey.

This comprehensive understanding allows us to identify areas of improvement and prioritize our efforts in subsequent tests to ensure a seamless and delightful user experience from start to finish. The user journey serves as a valuable reference point, enabling us to focus our attention on the most critical aspects of the product that will drive its success and resonate with our target audience.

We presented two personas and their user journeys for both every day life and event scenarios.

In the first, every day scenario, we introduced Sara, a fashion designer from Milan, Italy. Being tech-savvy, Sara's curiosity was piqued when she discovered Bolla, which she believed could help her connect with individuals who shared more than just her fashion interests. Her journey began with the initial exposure to Bolla through social media, capturing her attention and fueling her curiosity. Intrigued, Sara decided to purchase the bracelet. Upon receiving the bracelet, Sara eagerly downloaded the accompanying app and embarked on the setup process. She meticulously filled out the required questionnaire, providing information that would aid in finding someone compatible with her interests. Throughout this process, Sara held a sense of hope, eagerly anticipating the experiences that awaited her through our product.

Analyzing the user journey map, several opportunities to enhance the overall user experience emerged. One notable opportunity is to ensure that our product stands out from competitors by offering unique features and experiences. By doing so, we can differentiate ourselves in the market and capture the interest of individuals like Sara, who are seeking new and meaningful connections.



Fig. User Journey Map in every day scenario

Another opportunity lies in communicating a positive and friendly vibe throughout the user experience. This approach fosters a welcoming and enjoyable atmosphere, making users feel comfortable and excited about engaging with others through our platform.

Furthermore, we should emphasize transparency in pricing, ensuring that the product remains financially accessible to a wide range of users. By providing clear information about costs and avoiding hidden fees, we can build trust and enhance overall user satisfaction.

To enhance user onboarding, it is important to be specific and informative, guiding users through each step of the app setup process. Clear instructions and explanations will help users understand the purpose and functionality of the app, ensuring a smooth and seamless onboarding experience.

The user interface should also be designed with user-friendliness in mind, allowing for intuitive navigation and easy utilization of the app's features. Incorporating examples and suggestions within the interface can further assist users in providing accurate and relevant information, improving their matching results.

Safety and privacy are paramount concerns for users. Implementing robust measures to protect personal information and providing a secure environment for interactions will foster trust and confidence in our platform.

In the second scenario, we introduced Giovanni, a forty-two-year-old programmer who received an invitation to an IT event. Excited about the opportunity to discover new job prospects and engage in interesting conversations with his colleagues, Giovanni gladly accepted the invitation. To delve into Giovanni's user journey, we initiated his experience by introducing our product through the event's website. It was on this platform that Giovanni gained his initial understanding of our product's purpose and how it would be utilized during the event. Eager to explore the potential effects of the product at the event, Giovanni

proceeded to onboard himself by filling in the required information on the website. He approached this process with a sense of curiosity, intrigued by what the product had to offer. Upon his arrival to the event, he was greeted by the attentive staff at the entrance, who presented him with the smart bracelet—a key component of his experience. The bracelet contained all of Giovanni's preferences and what he was seeking at the event, what he provided beforehand. Equipped with the smart bracelet, Giovanni embarked on a truly enhanced event experience. The bracelet seamlessly integrated into his interactions, opening up a world of possibilities. As he engaged with other participants, the bracelet facilitated connections and conversations, acting as a catalyst for meaningful encounters. With his information readily accessible on the bracelet, Giovanni found it easier to engage with like-minded individuals who shared his interests and aspirations. The smart bracelet served as a valuable tool, empowering Giovanni to connect with potential job opportunities, engage in stimulating discussions, and forge new professional relationships.

During the user journey, several opportunities for improvement were identified. Firstly, there is a need to effectively communicate a positive and friendly vibe throughout the product experience. This can be achieved through thoughtful messaging, appealing visuals, and a user interface design that fosters a welcoming atmosphere. Creating a warm and inviting environment will encourage users to engage with the product and facilitate meaningful connections.

Another important aspect is to ensure clarity regarding the product's purpose. Users should have a clear understanding of what the product is used for and how it can benefit them during the event. Providing concise and explicit information about the product's features, functionalities, and intended outcomes will help users navigate the platform with confidence and align their expectations accordingly.

To enhance the user experience, it is crucial to be specific about the

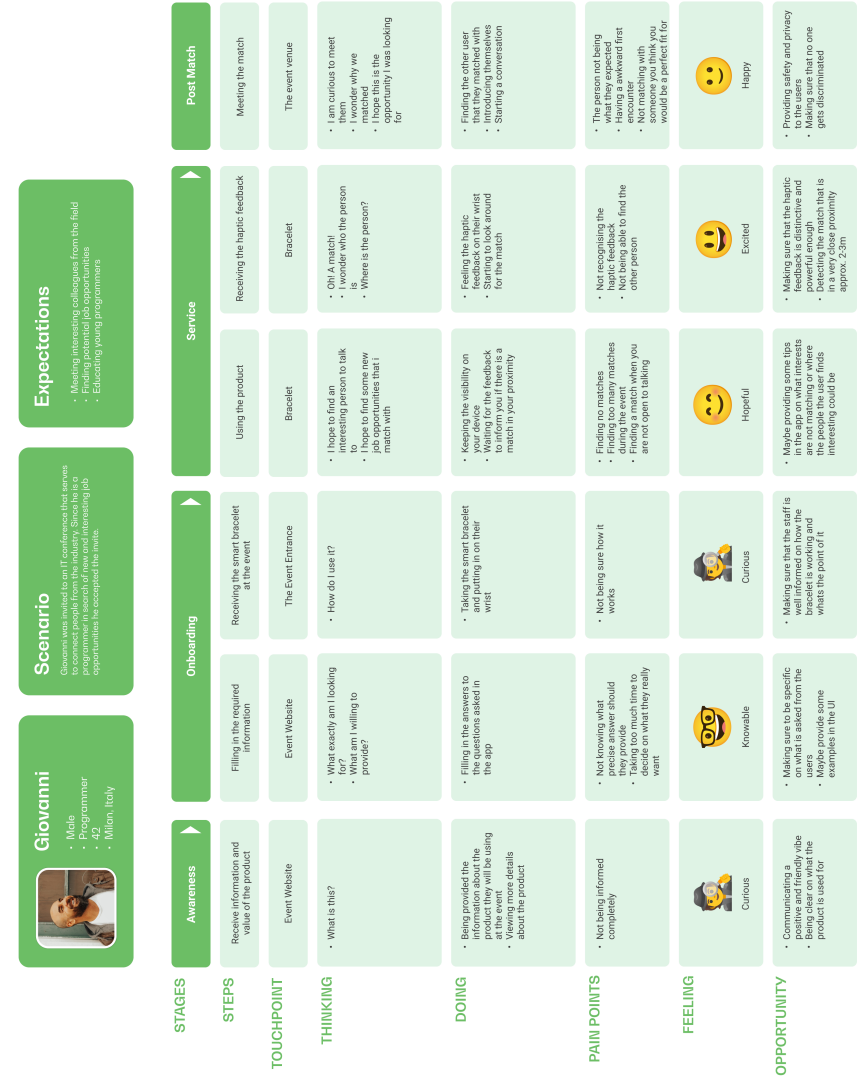


Fig. User Journey Map in event scenario

actions and information required from users. Clear instructions and prompts can guide users through the process, making it easier for them to navigate the events platform and understand how to effectively use the product. Additionally, incorporating examples within the user interface can provide practical guidance, illustrating how users can

leverage the product to achieve their desired outcomes.

Ensuring that the support staff at the event is well-informed about the product is another area for improvement. Staff members should possess comprehensive knowledge about the product, including its features, functionality, and purpose. This will enable them to provide accurate and timely assistance to users, addressing any questions or concerns effectively.

The haptic feedback generated by the product is a critical component of the user experience. It should be distinctive, powerful, and attention-grabbing to effectively notify users about potential matches and create a sense of excitement. Fine-tuning the haptic feedback system will contribute to a more engaging and interactive experience.

Ensuring user safety is of utmost importance. Implementing robust security measures and privacy settings will instill confidence in users, assuring them that their personal information is protected and fostering a safe environment for interaction.

Lastly, preventing discrimination within the product is essential. Striving to create an inclusive and unbiased experience where all users are treated fairly and respectfully, regardless of their background, interests, or other characteristics, will foster a sense of belonging and encourage diverse connections.

Both scenarios share common elements that have emerged as opportunities for improvement in the user journey. Firstly, effective communication and messaging are crucial in both scenarios. Clear and concise messaging is necessary to convey the purpose, features, and benefits of the product to users. Secondly, clarity and specificity are essential in guiding users through their interactions with the product. Providing clear instructions and being specific about the actions and information required from users help them navigate the onboarding process with confidence. The third common aspect is the significance of haptic feedback and proximity matching. In both scenarios, it is important to

refine the haptic feedback system to ensure it is distinctive, powerful, and attention-grabbing. This feedback plays a crucial role in notifying users about potential matches and generating excitement. Safety, privacy, and inclusivity are also shared considerations. Implementing robust security measures, privacy settings, and measures to prevent discrimination is essential in creating a safe and inclusive environment for users.

By recognizing these common elements and opportunities for improvement, we can focus our efforts on refining the user experience across different scenarios. Implementing enhancements in communication, clarity, haptic feedback, proximity matching, safety, privacy, and inclusivity will result in a more satisfying and engaging user journey, ultimately driving the success and adoption of the product.

Proof of Concept

Upon establishing our big idea, we embarked on conducting a test to validate and prove the concept. The test involved five participants and aimed to establish the efficacy of the smart bracelet-user relationship, specifically focusing on the haptic feedback's ability to inform users about nearby individuals of potential interest and to gauge the emotional response it evoked. Additionally, we sought to determine the preferred usage scenario for our product, whether in everyday settings or at events.

The test took place outdoors in Milan, Italy, utilizing a Figma prototype of the Bolla accompanying app and an Apple smartwatch. After providing a brief overview of the test objectives and explaining the two scenarios participants would be enacting, each participant was asked to wear the smartwatch and engage in role-playing activities until they received the haptic feedback signal. Subsequently, an interview was

conducted, which included the following questions:

1. How did the product make you feel?
2. Did you feel the curiosity of meeting the other person?
3. In which scenario did you perceive the product as more valuable?
4. Can you envision yourself using this product in a specific scenario? If so, which one and why?
5. Do you have any suggestions for improvement?

These interview questions aimed to elicit participants' emotional responses, assess their level of curiosity towards meeting potential matches, identify the scenarios where the product demonstrated its value, determine their willingness to adopt the product in their lives and gather any suggestions for refinement.

By conducting this test, we sought to gather valuable insights into the user experience, gather feedback on the product's emotional impact and perceived value, and identify any areas for improvement. The test's outdoor setting and use of a prototype enabled participants to engage with the concept in a realistic context. The combination of role-playing activities, haptic feedback, and subsequent interviews allowed us to gain a deeper understanding of the participant's perceptions, preferences, and suggestions, informing our iterative development process and enhancing the product's overall design and functionality.

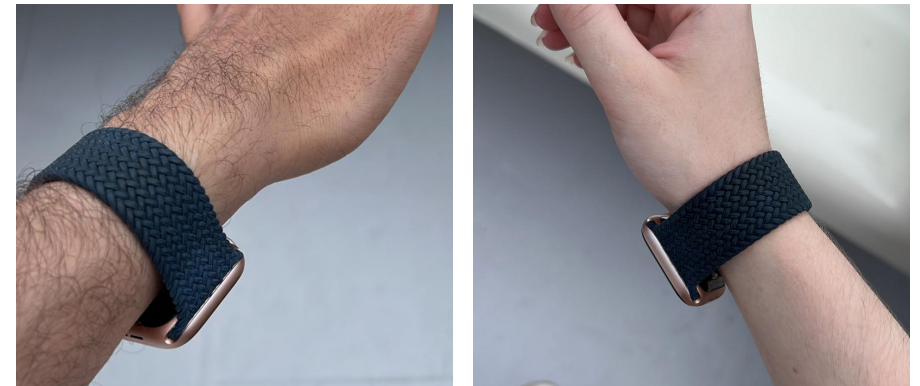


Fig. Smartwatch placement during testing

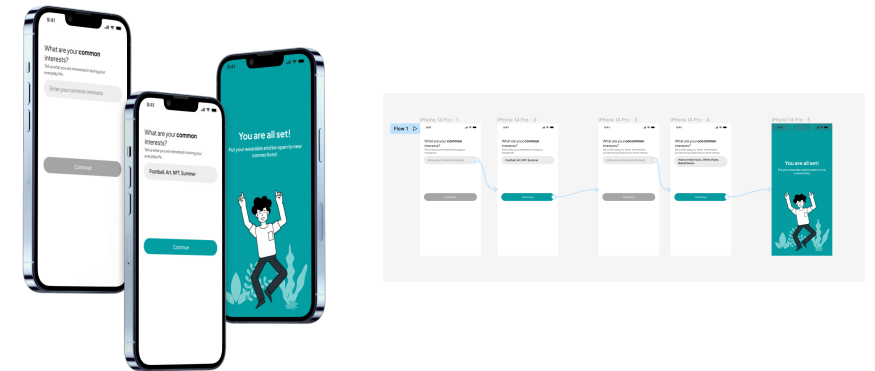


Fig. First Bolla App mockup and Figma prototype

Test Insights

Based on the comprehensive test and insightful interviews with the participants, we gained valuable insights that played a pivotal role in driving the development of our product. The following insights emerged from the test:

Insight 1: Captivating Notifications and Curiosity Spark

The product's notification feature effectively simulates the feeling of receiving a message, successfully capturing users' attention and arousing their curiosity. Participants expressed genuine interest in using

the product as a means to meet new people, particularly in scenarios such as events where they may experience shyness or hesitation in approaching others. The concept of connecting with someone nearby and the potential for engaging in meaningful conversations resonated strongly with the participants.

Insight 2: Seamless Integration and Differentiated Notifications

Participants suggested integrating the product with existing devices like smartphones or smartwatches, allowing for a seamless user experience. They emphasized the importance of having a distinct vibration pattern for the product's notifications, enabling users to differentiate them from other notifications they receive. This distinction was seen as crucial in ensuring that users could readily identify and engage with potential matches.

Insight 3: Safety and Empowerment in Event Settings

During the interviews, users emphasized the potential safety benefits of our product, particularly in event settings. They recognized the value of using Bolla as a means to connect with others while feeling secure, particularly highlighting its relevance for women who may have concerns about their safety. This aspect further reinforced the product's appeal and potential impact in fostering meaningful connections within event environments.

Insight 4: Willingness to Adopt and Contextual Usage

Overall, participants expressed a genuine willingness to incorporate the product into their lives, especially in social or event-related contexts. The test revealed that users recognized the value of Bolla as a tool to enhance social interactions and alleviate the challenges associated with meeting new people. Their openness to adopting the product underscored its potential to address existing user needs and desires for more meaningful connections.

These valuable test insights propelled us further in the development of our product, guiding our decision-making process and validating the core value proposition of Bolla. With a better understanding of users' preferences, expectations, and the potential impact of our product, we are now equipped to refine our concept and deliver a compelling solution that truly meets the needs and aspirations of our target audience.

Iteration

The valuable insights obtained from the concept test profoundly influenced the direction of our product, leading to two key iterations. Firstly, it became evident that the primary usage of the product would be in closed event settings, where users could feel a sense of safety and comfort while interacting with their matches. This particular scenario proved to be highly valuable and resonated strongly with users. As a result, we will focus on optimizing the product's features and functionalities to cater specifically to event environments.

Furthermore, in everyday life encounters, the concept test highlighted the importance of integrating our product into existing smart wearable devices. Participants expressed a preference for incorporating Bolla seamlessly into their current technological ecosystem. While the possibility of an independent smart bracelet remains a potential avenue for exploration in future stages of development, it will not be the primary focus of our product experience at this time.

By leveraging these critical insights, we have gained a deeper understanding of the optimal usage scenarios for our product and the importance of aligning with users' preferences and needs.

New User Journey

In the new context of everyday use integrated with the wearable that the user already owns, we introduced the persona of Tamara, a young

international worker who is new to the city and seeks new and exciting encounters. We crafted Tamara's user journey, starting from her initial awareness of the product, followed by her process of downloading and installing it from the app store, and ultimately using it to connect with someone new and initiate a meaningful connection. Throughout this journey, we delved into Tamara's thoughts, actions, and feelings, which provided valuable insights into potential pain points and opportunities for future development.

The first key opportunity was to differentiate our product from competitors in the market. By highlighting its unique value proposition and distinctive features, we can ensure that our product stands out and attracts the attention of potential users. This differentiation can be achieved through various means, such as emphasizing a positive and friendly vibe throughout the user experience, which creates a welcoming and enjoyable atmosphere for users to connect with others.

Financial accessibility is another important opportunity that emerged from the user journey map. By exploring a business strategy that could potentially make the app free for use, we can remove any hidden costs or barriers to entry, making our product more accessible to a wider audience. This approach not only attracts more users but also aligns with our goal of fostering inclusivity and ensuring that anyone can benefit from the value our product offers.

The user journey map also highlighted the importance of clear expectations and user guidance. By being specific and transparent about what is expected from users, we can provide clear instructions and guidelines that enhance their understanding and optimize their interactions with the product. This can be achieved through the incorporation of examples in the user interface, which help illustrate the types of interests that may not match or suggest potential locations where users can find people they find interesting.

Addressing the user's need for safety and privacy is crucial in building trust and credibility. Implementing robust security measures and



Fig. User Journey Map for device integrated every day use

emphasizing the protection of personal information will provide users with the peace of mind they need to engage with the product and interact with others. Additionally, accentuating that our service is for open-minded individuals promotes a welcoming and inclusive community, attracting users who are eager to engage in diverse conversations and broaden their horizons.

Lastly, enhancing the haptic feedback system and fine-tuning the matching algorithm is essential for delivering a powerful and effective user experience. By ensuring that the haptic feedback is distinctive and attention-grabbing, we can effectively alert users to the presence of a nearby match. Additionally, improving the proximity-matching capabilities of the algorithm allows for convenient face-to-face interactions, as users can connect with others who are in very close proximity.

By mapping out Tamaras' journey, we gained a deeper understanding of her experience and the challenges she may encounter along the way. This allowed us to identify specific pain points where the user experience could be improved. Additionally, we noted Tamaras' emotions and feelings throughout her journey, which shed light on the importance of creating a positive and emotionally rewarding experience for users like her.

Proof of Concept 2nd Round

In the second user test, our objective was to analyze the overall experience of individuals meeting in a serendipitous way. Specifically, we focused on testing the effectiveness of haptic feedback from the bracelets in triggering interactions between two strangers who matched using our product, no matter the scenario.

The test involved eight participants divided into two groups. The first

group conducted a test in a busy location, more specifically the university campus, while the second group performed the test in a park with fewer people present. This difference in location was done to compare the effectiveness of the experience when multiple strangers are around and when there are none.

Each group consisted of two pairs of participants who had no prior knowledge of each other. The key characteristic of the test was to observe the interactions between these matched pairs. To begin, the participants were provided with a prototype of the Bolla app to explore and familiarize themselves with the user interface. After which they put on their covered Apple smartwatches and started walking in a designated direction. Along the way, the smartwatch gave off haptic feedback and notify the participants that the person they matched with is in their proximity. This feature aimed to create a serendipitous moment for the participants, encouraging them to connect with their match and explore the potential for an unplanned encounter. The aim was to observe how this experience would impact the users and gauge their subsequent actions. After the participants met and the experience was finished, we asked them a series of questions that would later help us to assess the viability and value of the concept, determining its potential effectiveness in facilitating serendipitous connections.

By conducting this user test, we aimed to gain insights into the user's response to the haptic feedback and evaluate the extent to which it encouraged engagement and interaction.

Test Insights

During the user test interviews, participants shared their opinions about their experience. When asked how they felt upon feeling the vibration, responses varied. One participant admitted feeling somewhat biased because it was a test, but they noticed that other using the same app or device could be recognized based on visual cues like the



Fig. Smartwatch disguise for the test



group of people seeking connections. This created an additional layer of intrigue and facilitated the process of recognizing potential matches. Another participant found the sensation fun and surprising, finding it interesting as it sparked their curiosity. They described it as a unique and intriguing feeling that made them alert of their surroundings.

The user test interviews revealed consistent responses overall, but a significant difference arose when discussing the participants' sense of safety when meeting people using Bolla in different locations. Participants who tested the device in the park universally expressed feeling safe in that environment. Conversely, participants at the university campus mentioned feeling safe but attributed it to the campus being a "closed" setting. One participant mentioned that feeling safe depended on how the app was designed and how it controlled who could join. They acknowledged the potential risk of encountering harmful individuals but believed that a sense of judgment could be derived from observing the person in real life. They found the concept of the device intriguing as it provided an excuse to break the ice and approach someone comfortably. To enhance the icebreaking aspect, they suggested incorporating a question or conversation starter into the bracelet itself. Another participant valued the ability to deactivate the device, allowing them to control when they were open to meeting someone new. However, one female participant expressed her disagreement and stated that she did not feel safe in such an environment, offering a contrasting viewpoint.

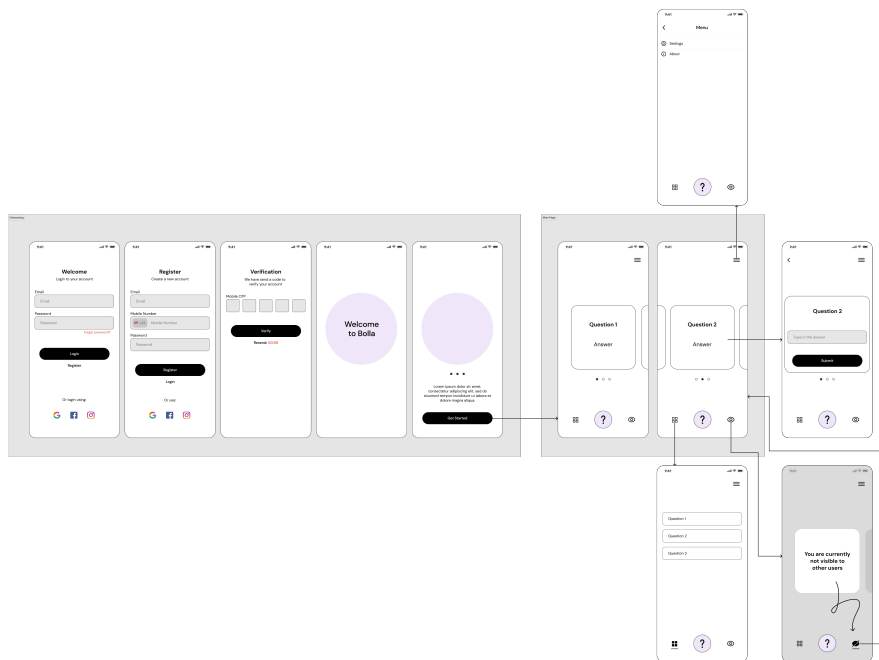


Fig. Bolla App Wireframe used for the test

bracelet which was the same color and style as theirs. This gave them an understanding that someone else using Bolla was present. Additionally, another participant also mentioned that seeing the bracelet on someone else served as an indicator that they were part of the same

Even though the minimalistic aspect of the experience was appreciated, reflecting on the overall experience, participants provided valuable feedback for improving the device. One significant concern raised was regarding safety and privacy. They advised implementing policies and rules to ensure user safety and to address the issue of privacy to make users feel secure while using the device. One participant proposed implementing a safety feature similar to the one used by Uber in

Germany, where users can quickly share their location with the police in case of an emergency during their ride. Advice for improving the device included incorporating a small indicator, such as a dot of light or a shape-changing interface, to help recognize the person being met. Additionally, participants suggested modifying the haptic feedback, making it stronger as users get closer to their match.

When asked about their opinion for using the device in an event setting, participants expressed interest. They saw potential in using the device at events like concerts or business gatherings, where they often found it challenging to connect with like-minded individuals. They believed that the device could make such experiences more efficient and enjoyable.

In summary, participants found the Bolla product intriguing and saw potential in using it to meet new people. However, ensuring user safety, privacy, and comfort were still a critical areas for improvement. Suggestions included implementing safety features, modifying the haptic feedback, and incorporating visual cues. Bolla was seen as particularly useful in event scenarios, where it could facilitate connections among attendees which already have the event as their shared interest.

Iteration

Based on insights gathered from user test interviews, we have identified several key improvements to implement in the Bolla product. Firstly, to address user safety concerns, we have taken inspiration from a participant's suggestion and decided to integrate an emergency button into both the device and the app. This button, when pressed, will instantly share the user's location with the authorities, providing a valuable security measure. Additionally, we will prioritize the implementation of a robust user verification system, ensuring that personal information remains private. These measures aim to instill a sense

of comfort and security, enabling users to engage in new connections with peace of mind.

Secondly, participants emphasized the significance of visual cues, such as the bracelet, in recognizing other app users and fostering a sense of community. With the incorporation of this visual indicator, such as a dot of light, the user journey undergoes a slight modification, specifically in the final step where users have the opportunity to meet in person. By providing a clear visual cue, users will have an easier time identifying their matches, creating a more seamless and efficient meeting process. This enhancement aligns with the participants' desire for a user-friendly and intuitive experience, fostering a greater sense of excitement and anticipation when encountering a potential match.

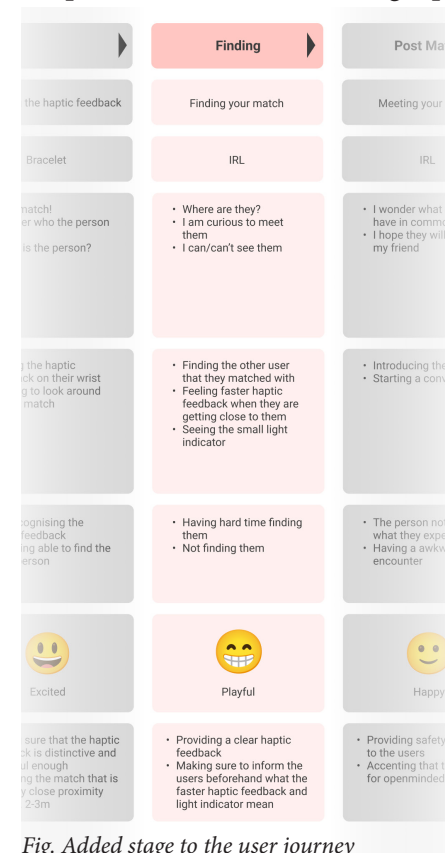


Fig. Added stage to the user journey

Thirdly, participants suggested modifying the haptic feedback to become stronger as users get closer to their match. This enhancement could provide a more intuitive and engaging experience, allowing users to sense proximity and increasing their anticipation and excitement when nearing a potential connection.

Through an iterative process of concept refinement, we have strived to transform Bolla into a product that prioritizes user safety while fostering captivating and meaningful connections. With each round of feedback and improvement, we have carefully shaped Bolla into its final form, encompassing both the product itself and the accompanying system. Our goal is to revolutionize the realm of social connection, offering a trusted platform that seamlessly integrates safety, innovation, and genuine human interaction.

By acknowledging the various iterations and incorporating valuable insights from user testing and feedback, we have created a robust and reliable product that addresses the needs and desires of our users. Bolla represents a significant leap forward in the way people connect, providing a secure environment where individuals can form authentic connections with others who share common interests and values.

The System

System Architecture

Defining the system architecture is essential for developing a product as it provides structure, scalability, performance, modularity, and facilitates collaboration. It ensures that the development process is efficient, adaptable, and produces a reliable and high-quality end product.

Our system architecture encompasses several key touchpoints to ensure seamless user experiences. In the everyday scenario, our mobile

app serves as the primary touchpoint, wirelessly communicating with the Bolla smart bracelet or the user's smartwatch to provide haptic feedback. This interaction between the app and the smart wearables enhances the user's engagement and keeps them informed about relevant notifications.

In the event scenario, the first touchpoint is the event platform, which establishes a wireless connection with the event dedicated Bolla smart bracelet. This connection enables the bracelet to deliver haptic feedback to the user, keeping them informed. The integration between the event platform and the smart bracelet ensures that participants have a rich and immersive experience throughout the event.

Both scenarios rely on a cloud computing platform that serves as a foundational element in our system architecture. This cloud platform securely stores user data, hosts the matching algorithm responsible for connecting compatible users, and facilitates location-tracking func-

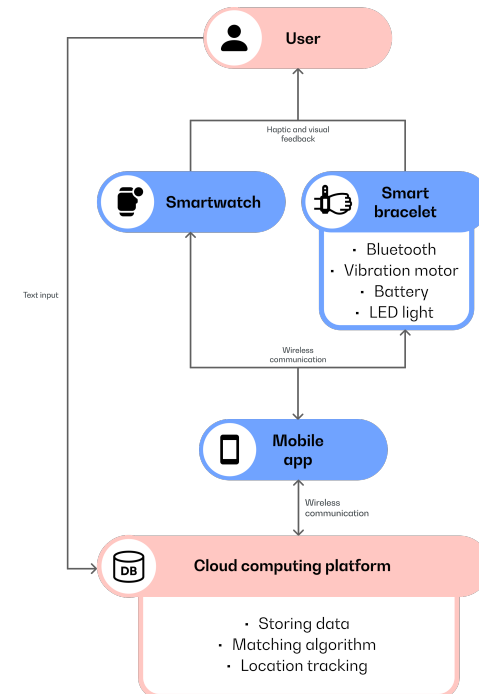


Fig. System architecture for every day use

tionalities. By leveraging cloud computing, we ensure the scalability, reliability, and accessibility of our system, allowing users to seamlessly access their data and receive real-time updates across different touch-points. This architecture enables efficient communication, haptic feedback delivery, data storage, and matching algorithms, all working together to enhance user engagement and satisfaction.

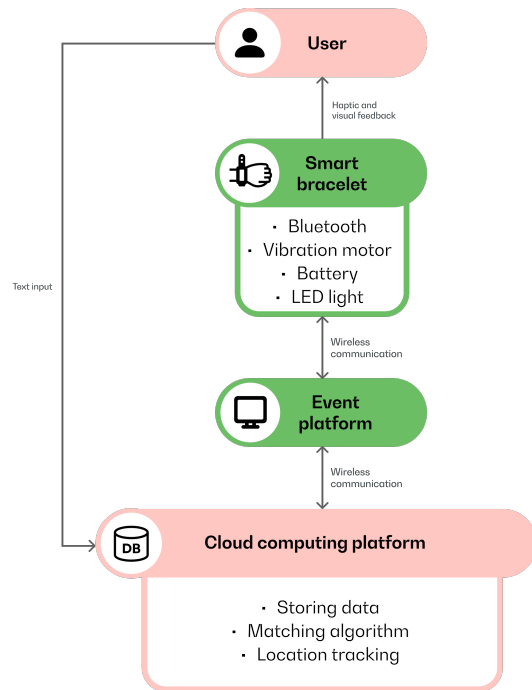


Fig. System architecture for event use

Bolla App

In the everyday usage scenario, the Bolla app plays a pivotal role as the primary component. This app serves as the initial point of interaction, where users can sign in and provide their information regarding their interests. The purpose behind this is to facilitate the matching process, enabling users to connect with others who share similar interests. By keeping the app completely anonymous we discard the importance of

appearance of the users and focus more on their compatibility. Moreover, the app serves as the central hub, housing the machine-learning algorithm responsible for matching users based on their shared features and preferences. It leverages the information provided by users to identify and establish connections with compatible individuals.

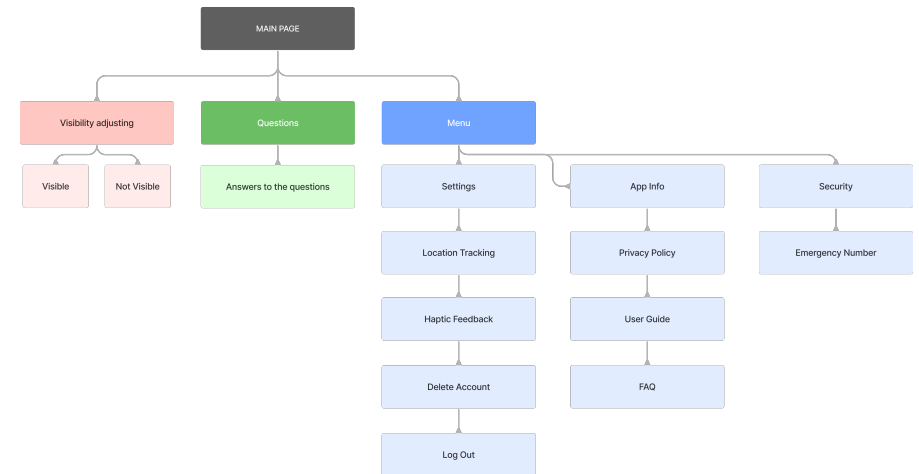


Fig. Bolla App Information Architecture

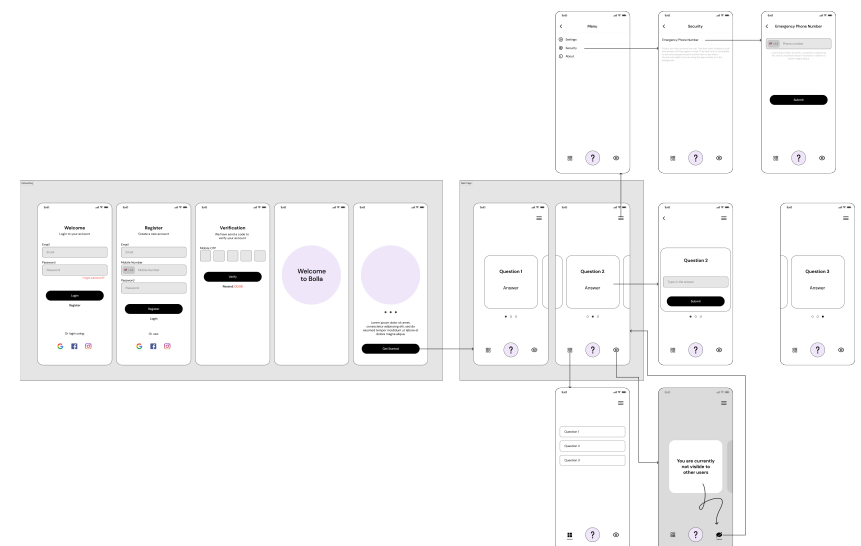


Fig. Bolla App Final Wireframe

Matching Algorithm

The matching algorithm implemented by Bolla is designed to be straightforward yet effective. It utilizes the data provided by our users, which includes their answers to a set of questions. In the everyday setting, the algorithm focuses on establishing intriguing connections, prioritizing compatibility over the pursuit of perfect matches. This approach recognizes that shared interests and similarities, even within a certain range, can lead to engaging interactions and meaningful relationships. However, in event scenarios, the matching algorithm operates with a different objective. Here, the algorithm's emphasis shifts towards maximizing compatibility to enhance participants' event experiences.

In everyday settings the algorithm focuses on finding similarities within a range of 50% to 90% for optimal compatibility. In essence, when the answers to a user's questions align with another user's answers by more than 50% but less than 90%, a match is established, and their respective locations are communicated to the system. This straightforward criterion ensures that users with a substantial degree of compatibility are connected while allowing for a degree of diversity in their responses.

This approach allows for a broader pool of potentially interesting matches, enhancing the overall user experience and fostering engaging connections.

When utilizing the Bolla system for events and incorporating the use of bracelets, the matching algorithm undergoes a slight modification. In this scenario, the algorithm's matching range is adjusted to focus on higher levels of compatibility. Specifically, it now requires a match of 70% to 100% between the answers of users. This refined range ensures that event participants who are connected through Bolla and wearing

the bracelets share a substantial overlap in their preferences and interests. By emphasizing a higher degree of matching, the system aims to foster more meaningful and closely aligned connections, enhancing the overall event experience for participants.

To accomplish the matching of answers, Bolla employs Natural Language Processing (NLP). NLP combines computational linguistics, statistical analysis, machine learning, and deep learning models. By integrating these techniques, NLP enables computers to process and understand human language, whether it is in written or spoken form, including the speaker or writer's intent and sentiment. Bolla's advanced NLP framework allows for meaningful insights to be extracted from user responses, facilitating accurate matching based on a deep understanding of users' expressed preferences and nuances.

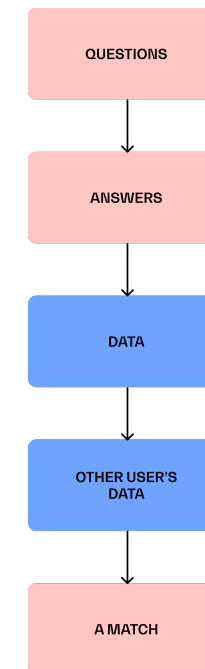


Fig. The algorithm system flow

Questions

The questions posed to users within our system constitute another crucial component in finding their matches. We conducted a research in order to determine the most appropriate questions that effectively encourage users to express their preferences while also considering the type of person they desire to meet. We have carefully selected foundational questions that lay the groundwork for establishing a strong connection. The questions are periodically refreshed and updated over time to maintain a sense of novelty and excitement while using our product. This ensures that users continue to engage with Bolla, discovering new and meaningful connections based on evolving preferences and interests.

Discovering a compatible match for someone is a nuanced undertaking that requires delving into their values, interests, and aspirations. While there are no universally applicable questions, here are some examples of questions that can aid in building a deeper understanding of someone and assessing compatibility:

1. What are your passions?
2. What are your interests?
3. What are your long-term goals and aspirations?
4. How do you like to spend your free time?
5. If you could have any superpower but it had to be completely useless, what would you choose?
6. What's the silliest fear you have that you know is irrational?
7. What's the most embarrassing thing you've ever done in public?
8. If you could invent a holiday, what would it be called and how would people celebrate it?
9. If you could communicate with one type of animal, which would you choose and what would you talk about?

10. What's the funniest or weirdest thing you've ever overheard in a public place?

By considering a wide range of topics and catering to individual preferences, our questions aim to establish a strong foundation for connection-building. Ultimately, we strive to facilitate the discovery of compatible matches, promoting fulfilling relationships.

The Smart Bracelet

The bracelet assumes a central role in both everyday scenarios and event settings, acting as a pivotal element that enhances the entire Bolla experience. Upon acquiring the bracelet or before attending an event, users are prompted to complete a questionnaire to optimize their matches. Once this step is completed, the bracelet becomes ready for use, serving as a conduit for interaction with other Bolla users. Technically speaking, the bracelet is equipped with a straightforward system, consisting of Bluetooth technology, a vibration motor, a small LED light, a safety button and a battery.

The integration of Bluetooth technology enables seamless connectivity between the bracelet and the accompanying app, facilitating real-time communication and match notifications. The vibration motor provides distinct haptic feedback, ensuring users can easily detect incoming interactions and prompting them to engage with potential matches. Additionally, the small LED light serves as a visual cue, aiding users in identifying other Bolla participants in crowded environments.

Furthermore, the inclusion of a safety button underscores Bolla's commitment to user well-being. This feature grants users peace of mind, as they can swiftly request assistance or notify authorities if they feel uncomfortable or unsafe during an interaction.

The simplicity of the system incorporated into the bracelet allows for

greater freedom and customization in its design. With the technical components streamlined, the object itself can be more creatively designed and tailored to suit individual preferences. This opens up a world of possibilities for unique and personalized aesthetics, enhancing the overall user experience.



Fig. Smart bracelet references

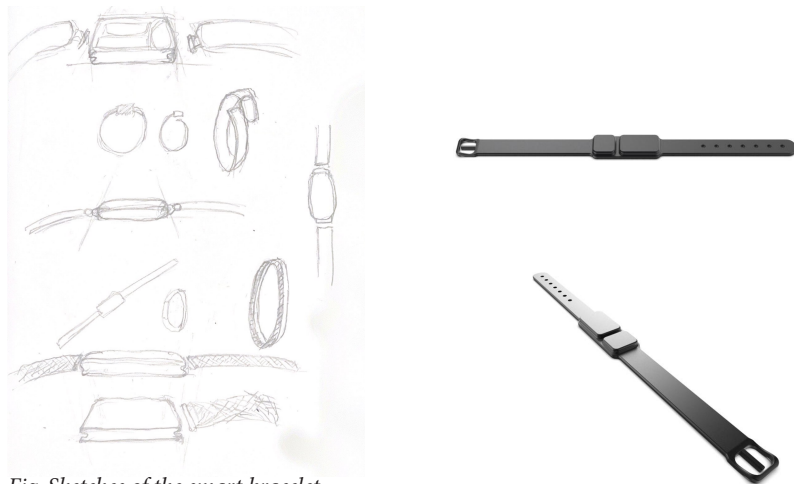


Fig. Sketches of the smart bracelet

Sustainability

In our design process, we recognized the significance of sustainability when creating a product intended for mass production and widespread use. To incorporate this idea into our approach, we devised a solution centered around the concept of modularity and versatility. By leveraging the simplicity of the technology system within the Bolla bracelet, we made the conscious decision to make the tech component removable and the bracelet part interchangeable. This design approach allows for multiple usage opportunities, aligning with our sustainability goals. In the context of events, we would implement a biodegradable material option for the bracelet. This not only addresses environmental concerns but also provides an opportunity to align the bracelet with the event's branding. By customizing the bracelet to match the specific event, it becomes a cohesive and engaging element that enhances the overall experience.

Furthermore, in future everyday use, we recognized the importance of individual expression and personal style. To cater to diverse preferences and aesthetics, we would create a range of stylish and customizable options for the interchangeable bracelet part. Users can easily swap out the bracelet to match their outfit, mood, or personal taste, adding a touch of individuality to their daily interactions.

We will also prioritise material innovations that transform pre- and post-consumer waste into new recycled trim composites. Sourcing wood, cork, shell, paper, silicone, cotton, polyester and nylon. Embracing flecks, surface imperfections and colour shifts.

By designing the Bolla bracelet with removable tech and interchangeable bracelets, we not only promote sustainability but also empower users to make conscious choices about their accessories. The modular design allows for the longevity of the product, reducing waste and maximizing its utility.



Fig. Examples of potential materials to use

Visual Identity

Design Brief

Introducing Bolla, a smart wearable device designed to revolutionize the way strangers connect. Unlike traditional app-based approaches, Bolla prioritizes genuine human interactions in the real world, redefining the concept of serendipity. By seamlessly integrating into users' daily routines, this innovative device goes beyond chance encounters, transforming them into memorable experiences brimming with untapped potential for meaningful face-to-face connections.

Bolla breaks free from the constraints of virtual communication and brings people closer together tangibly and authentically. By wearing the Bolla device, users open themselves up to the exciting possibilities of meeting new individuals and forming genuine connections outside the confines of screens and algorithms. This unique approach encourages spontaneous interactions and nurtures the essence of serendipity, where meaningful connections can arise when least expected. With Bolla, users can embrace the thrill of encountering strangers who share common interests, and aspirations, or simply offer a fresh perspective. The device acts as a catalyst, bridging the gap between individuals who may have never crossed paths otherwise. It empowers users to embrace the beauty of chance encounters, unlocking a world of social possibilities and enriching their lives through real-world connections. By reimagining the concept of connection, Bolla challenges the limitations of digital communication and inspires users to engage with the world around them. It encourages exploration, fosters curiosity, and celebrates the power of genuine human interaction. With Bolla, strangers become potential friends, mentors, or even soulmates, as the device creates opportunities for authentic connections that can leave a lasting impact on people's lives.

Experience the transformative potential of Bolla, the smart wearable device that brings serendipity back into the realm of human connection. Embrace the thrill of chance encounters, unlock the hidden gems of face-to-face interactions, and embark on a journey where every moment holds the promise of something extraordinary. Bolla is more than just a wearable device – it's a doorway to a world of meaningful connections waiting to be discovered.

Target Audience

Bolla's target audience is composed of individuals who possess a vari-

ety of characteristics and aspirations. One segment of Bolla’s audience includes optimistic, social, and outgoing individuals who embrace life with a positive attitude and enjoy connecting with others. These individuals thrive in social settings and are eager to expand their social circles, making Bolla an ideal platform to meet new people and create memorable experiences. Another target audience for Bolla is the tech-savvy group, consisting of individuals who are comfortable with technology and enthusiastic about its potential to enhance their lives. These individuals appreciate innovative solutions and enjoy exploring new gadgets and devices. Bolla’s smart wearable device and its unique approach to connecting people align with the preferences of this tech-savvy audience, providing them with novel experiences and leveraging technology for social interactions. Bolla also appeals to open-minded individuals who value diversity and are eager to engage with people from different backgrounds and cultures. This audience seeks opportunities to broaden their horizons, foster understanding, and build bridges between communities. Bolla’s emphasis on serendipitous connections resonates with its desire to interact with a diverse range of individuals and explore new perspectives.

The pioneers, another segment of Bolla’s target audience, are individuals who are at the forefront of societal change. They embrace entrepreneurialism and actively seek new ways of living while tackling societal hurdles. Bolla’s focus on redefining human connections aligns with their desire to forge meaningful relationships outside the confines of traditional social structures. They are eager to experiment with innovative approaches and find alternative paths to building connections. Lastly, Bolla targets the reductionists, individuals who aim to re-humanize their lives by prioritizing authentic interactions and experiences. This audience recognizes the importance of disconnecting from virtual connections and re-engaging with the real world. Bolla’s emphasis on face-to-face connections resonates with their desire to cultivate genuine relationships and create a sense of depth and meaning in

their lives.

By catering to these diverse segments, Bolla aims to bring together individuals who share a common desire for genuine human connections. Through their platform, they provide a space for people to meet, interact, and embark on shared experiences, fostering a sense of community and facilitating meaningful connections in today’s digital age.

Tone of Voice

The tone of voice of a product plays a crucial role in shaping the overall user experience and perception. It goes beyond mere words and encompasses the personality, style, and values that the product conveys through its communication. The tone of voice of a product plays a vital role in shaping user perceptions, establishing brand identity, building emotional connections, conveying information effectively, differentiating from competitors, catering to the target audience, and maintaining consistency. By carefully crafting and implementing a thoughtful tone of voice, a product can enhance its overall user experience and foster strong user engagement.

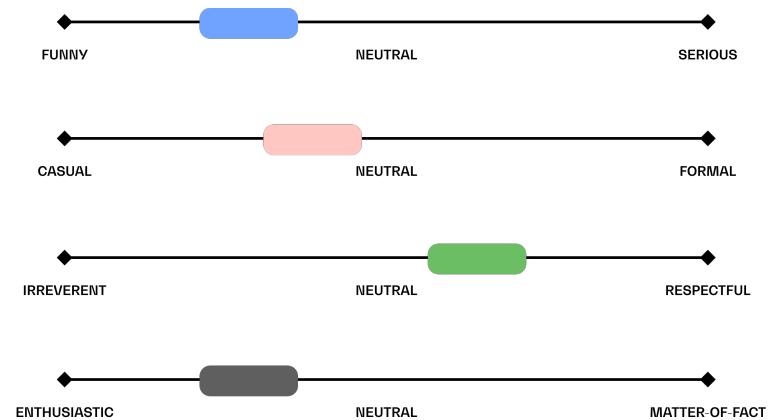


Fig. Bolla tone of voice scale

Bolla's tone of voice is carefully crafted to exude a lighthearted and casual vibe, reflecting our desire to create a friendly and approachable atmosphere for our open-minded audience. We understand the sensitivity surrounding the topic of meeting strangers, particularly for more introverted users. As a result, our tone also maintains a level of respect and consideration, ensuring that all users feel comfortable and safe throughout their Bolla experience.

At the same time, Bolla embraces an enthusiastic tone, recognizing the inherent value of connecting with new and exciting individuals through a novel and unfamiliar journey. We believe in the transformative power of forging connections with people outside our immediate circles, and our enthusiasm reflects our commitment to facilitating these meaningful interactions.

By striking a balance between humor, casualness, respect, and enthusiasm, Bolla sets the stage for an engaging and inclusive environment where users can embark on a journey of discovery and connection. We aim to create an atmosphere that is inviting, warm, and full of possibilities, encouraging users to step outside their comfort zones and embrace the excitement of meeting new people.

Branding

Building upon the comprehensive research and testing we conducted, which provided us with invaluable insights and a deep understanding of our product, we embarked on the crucial task of crafting the branding strategy for Bolla. This involved translating our findings into a compelling brand identity that effectively communicates the essence of our product and resonates with our target audience. By leveraging the knowledge gained from our research, we were able to develop a cohesive and impactful branding approach that aligns with the core values, unique features, and desired positioning of the Bolla product.

Branding is important for product development as it allows for differentiation in a competitive marketplace, builds trust and credibility among consumers, creates emotional connections, enhances perceived value, ensures consistency and recognition, and enables long-term growth and expansion. A strong brand helps a product stand out, fosters customer loyalty, and communicates the unique qualities and benefits of your offering, ultimately contributing to its success in the market.

Naming

The process of naming our product was a collaborative effort, involving several brainstorming and voting sessions. After careful consideration, we arrived at the name "Bolla," which translates to "Bubble" in English. The name was chosen with a specific intention in mind – to symbolize breaking free from the social bubble individuals often find themselves in. Bolla aims to encourage users to step out of their comfort zones, be more open to meeting new people, and foster meaningful connections and experiences. The name not only captures the essence of our product's purpose but also evokes a sense of curiosity and intrigue, sparking interest among our target audience.

Logo and Colors

Afterward, we proceeded to envision the Bolla brand by creating a distinctive logo and selecting a color scheme that would best represent its identity. The logo design was carefully crafted to reflect the essence of Bolla's purpose and values, while also capturing the attention of our target audience. Similarly, the choice of colors was deliberate, aiming to evoke specific emotions and associations that align with the brand's personality.



Fig. Bolla logo



Fig. Bolla main colors



Fig. Bolla grayscale logo variations

Conclusion

Throughout this thesis, we have effectively translated the studio's vision into a tangible reality by leveraging the design framework of the Double Diamond and introducing the visionary element of the Vision Diamond. By embracing this strategic approach, we reached our goal by not only differentiating ourselves from competitors but also rejuvenating our engagement with clients, unveiling a fresh perspective that captures their attention and fosters meaningful connections.

Our design research highlighted the importance of algorithmic biases, user preferences, and the integration of technology in creating a solution that resonates with users and promotes meaningful connections. The extensive literature review examined the value of social interaction, the impact of technology, the concept of serendipitous social interaction, the potential of wearable technology, and the role of poetic interaction in design. By considering these themes, we are able to create an immersive experience that enhances well-being, reshapes perceptions of technology, and fosters connections in the digital age.

With this thesis we underscored the significance of a transformative service that goes beyond combating loneliness to reestablishing the inherent worth of genuine human connections.

By examining the complexities and nuances of social interactions, we have uncovered the profound impact that meaningful connections have on individual well-being and societal harmony. Our research has

unveiled the transformative potential of fostering connections that not only alleviate loneliness but also enrich lives, foster personal growth, and drive societal progress. By recognizing the significance of these authentic connections, we have laid the foundation for the development of a truly innovative and impactful service – Bolla. Through our journey, we have come to understand that Bolla represents more than just a product; it embodies a vision to revolutionize the way people connect, fostering a culture of openness, empathy, and meaningful engagement in an increasingly digitized world. By prioritizing the restoration of genuine human connections, Bolla offers a transformative experience that has the power to redefine the landscape of social interaction and elevate the well-being of individuals and communities alike.

Furthermore, our exploration of wearable technology has highlighted its potential for enhancing social interactions and cultivating a sense of belonging. While research in this area is limited, we emphasize the multifaceted nature of wearables and their capacity to facilitate social bonds. It is crucial to expand our focus beyond healthcare applications and delve into the social implications of wearables, providing valuable insights into human behavior and social dynamics.

Through interdisciplinary collaboration and a human-centered approach, we have shaped a future where technology catalyzes genuine human connection and meaningful experiences.

Appendix

Survey Script

Dating and Friendship apps

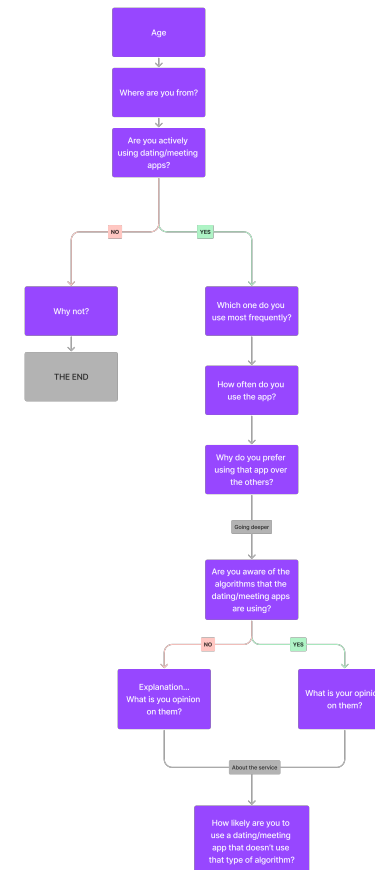


Fig. Survey flow

Introduction

Hello all!

Let's talk about dating and friends apps!

There are plenty modern day solutions that advertise connecting people to their perfect matches or most interesting people, thanks to the algorithms that they are using.

While some algorithms are proven to be helpful most are making more harm than good.

I'm Jana and for my Master thesis in Digital and Interaction Design I'm working on more inclusive and humane technology, and I hope you can help me with my research on this topic.

1. What is your age?

- 18-25
- 25-30
- 30-55
- 55-70

2. What country are you from?

[enter the answer]

3. Are you actively using dating and/or friends apps?

- Yes
- No

4. Which app are you using most frequently?

[enter the answer]

5. How often are you using this app?

Scale:

- 1- once a month
- 5- multiple times a day

6. Why do you prefer using this app over the others?

[enter the answer]

7. Why aren't you using those apps?

[enter the answer]

Lets see what's behind most dating and friends apps! Lets talk about the algorithm!

The algorithm used in most dating and friends apps are meant to operate on the basis of collaborative filtering - generating recommendations based on majorities opinions.

Large userbase makes uncommon preferences seem more uncommon and common preferences seem even more common.

Collaborative filtering works to generate recommendations, but those recommendations leave certain users at a disadvantage.

8. What is your opinion on these algorithms?

[enter the answer]

9. Have you experienced the effects of the algorithm yourself?

- Yes
- No

10. What kind of experience was it?

[enter the answer]

11. How likely are you to use a dating and/or friends app that doesn't have a filtering algorithm?

Scale:

1- not at all

5- very likely

If you are interested in participating in further interviews, focus groups and app testing please be kind to leave your email below:

[enter email]

User test scripts

Proof of Concept

Smart watch connected to the phone so it can receive notifications. Instructing the testers to start walking and send message at some point for them to feel the haptic feedback.

Tell the participants to focus on the feeling when the wearable vibrates.

Scenario 1:

The participant fills in the form of what are their common and uncommon interests.

The participant is walking down the street and the wearable vibrates to inform them that there is a person close by that matches their interests.

Scenario 2:

The participant fills in the form of what they are looking for at the event and what is their role.

The participant enters the event space and the wearable vibrates to in-

form them that there is a person close by that matches their interests.

Interview questions:

1. How did the product make you feel?
2. Did you feel the curiosity of meeting the other person?
3. In what scenario did you feel the product being more valuable?
4. Do you see yourself using this product in some scenario? If yes, which one and why?
5. Any suggestions?

Proof of Concept 2nd Round

Two participants that are strangers wearing smartwatches that are connected to a phone.

Step 1: Introduce them to the Bolla app.

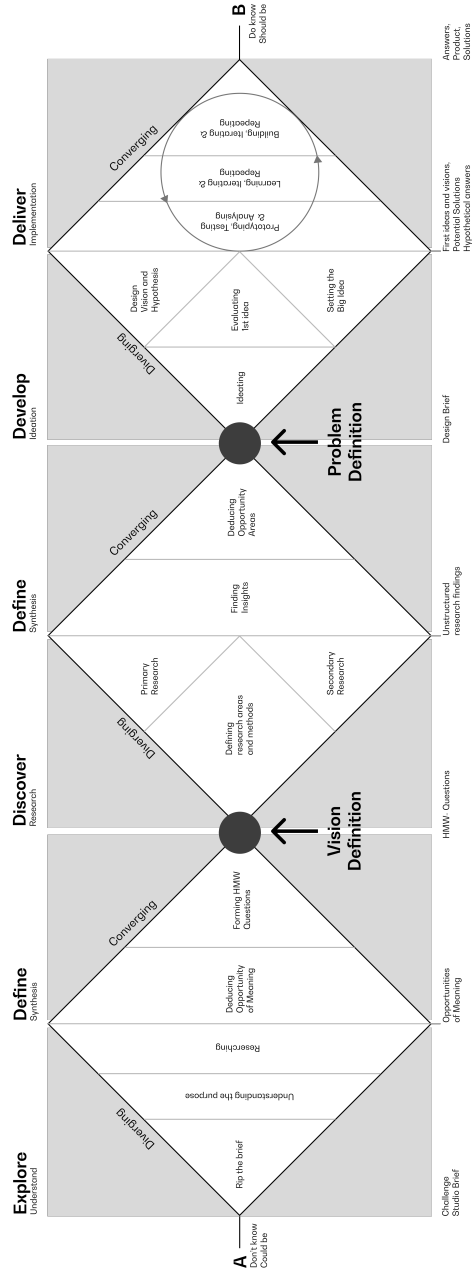
Step 2: Instruct them to start walking from different positions.

Step 3: When they cross paths the smartwatch vibrates.

Interview questions:

1. How did this experience make you feel?
2. Did you feel curious about meeting someone new?
3. Did you feel safe to meet someone new?
4. How did you find the conversation with the other user?
5. Did you encounter any challenges or limitations in interacting with the Bolla interface or the device?
6. Is there anything you would change about the experience to improve it?
7. On a scale 1 to 10 how likely would it be for you to use this product? In the everyday as well as the event scenario.

Detailed Design Process



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