INTRODUCTION

Vive is a smart band that keeps young people safe and connected when in high risk social situations (i.e. social situations involving alcohol). This document records the process we as a team followed in creating Vive. It reviews: our research and findings; existing technology and solutions within the problem space; the concepts we discarded as we progressed towards our final solution; an overview of Vive including its features and technology; the major design decisions made throughout the process and justification for them; and high level next steps for the project.

Vive is the result of thorough and successful collaboration by six team members. The concept has been selected to represent the University of Washington at the 2014 Microsoft Design Expo. The product concept will evolve as the team continues to work on it, so this is a living document that will change alongside it.
The Team

MASON CATT  Interface Designer, Motion Designer, Branding

KRISTINA COLLEEN  Film Director and Editor, Sound Editor

DAN DOAN  Technical Director, Photography, Interface Designer

COURTNEY DUTTON  Information Architect, Researcher, Interface Designer

GWENYTH HARDIMAN  Creative Director, Project Manager, Researcher

ABIGAIL STEINEM  Visual Communications, Layout, Researcher

Though we performed distinct roles as detailed above, Vive is a creative product of the collective team and our diverse perspectives and backgrounds.
Research

The overarching problem space we identified early on as being a worthwhile focus is sexual assault. We conducted extensive research into this topic in order to lay the conceptual groundwork for approaching our design space. We conducted primary research in the form of interviews, and secondary research in the form of literature, current technology, and pop culture reviews.

Our research questions explored the following:
- Where sexual assault occurs most frequently, and what circumstances are known to contribute to it
- The issue of consent and "explicit consent"
- The concepts of "slut shaming" and "victim blaming"
- Sexual assault statistics for various demographics
- The psychology at work behind sexual assault
- What sexual assault means within and to various social and cultural groups, such as the Greek system, the LGBTQ community, and college life?
- Where sensor technology can intervene?
- What products or services are in existence already?

Our primary research focused on speaking to members of SARVA, the Sexual Assault and Relationship Violence Activists at UW, in order to gain greater insight into our secondary research findings.

The insights we gathered throughout our research phase that informed our design are as follows:
- Alcohol and sexual assault are strongly correlated.
- High risk social situations are those in which there is the possibility of drinking (or taking drugs) to excess.
- Technological innovations that put the onus on the victim to “save themselves” are counter productive to stopping sexual assault.
- Gender stereotypes contribute to incorrect assumptions about why and how sexual assault occurs. The idea that women are victims and men are perpetrators only serves to perpetuate dangerous misconceptions. The reality is both men and women are victims and perpetrators.
- Sexual assault is most commonly committed by friends or acquaintances of victims.
- Education and conversation are critical elements to curbing sexual assault.
- Culturally we’re taught that rape and assault happen to those who deserve it or invite it.
- There exists a distinction between sexual predators who set out to do harm, and perpetrators who for contextual reasons end up committing assault by accident or lack of knowledge.

Following our research, we defined design goals for our project.
1. Help to prevent sexual assault
2. Create awareness of rape culture
3. Build a safe and engaged community
4. Don’t put the onus on victims
5. Encourage safe, responsible behavior
6. Use technology to enhance existing safety mechanisms and networks
7. Be friendly and informative, not alarming or disturbing
Research

Research Whiteboard Brainstorming Session

SARIS: Advocate Group on UW Campus

Assault Prevention Brainstorming
Existing Products

A slew of technology currently exists to try and combat the problem of sexual assault. Two of these products, Circle of 6 and AR Wear, do this in distinct ways.

Circle of 6
A smartphone app designed to extract the user from uncomfortable situations, whether it’s a bad date or just an uneasy encounter. The app is named such because of the 6 people the user designates as their safety contacts. Three icons on the screen allow the user to quickly contact these people and ask for a ride home, a phone call interruption, or just advice for his or her current situation. In more dire situations there are also pre-programmed national hotlines and local emergency numbers that can be called.

AR WEAR
A brand of anti-rape underwear, developed to keep women safe from sexual assault. The line of shorts, pants and underwear are created like armor, with an internal skeleton that makes the garments impossible to remove, and material that is resistant to pulling, tearing and cutting by assailants. AR Wear was created around the idea that physically preventing rape increases a woman’s chance of escape and overall safety.

Although these products are noble in their intentions, they fall short in their execution by ultimately leaving the onus on the victim to stay safe and find help, which can lead to victim blaming. A problem with products like Circle of 6 and AR Wear is that they are a last line of defense. These are solutions protecting users in the heat of attack. Both rely on users to actively wear or use the device to keep them safe from sexual assault.
Early Concepts

Over the ten weeks we worked on this project, our team developed three distinct product concepts in response to the 2014 Microsoft Expo brief, “A Billion Sensors”. Each one is an attempt to thwart the troubling trend of sexual assault and to help our users navigate the dating space.

Sex Guide
An early concept was to use sensors to communicate arousal levels between partners when engaged in intimate encounters. The basis for this was to build confidence, honesty and fun in relationships. What worked well was that the concept could be developed as training wheels for good sexual communication for a couple. The system would tell a user if his or her partner liked or didn’t like what he or she was doing, like a traffic light. However this product quickly turned negative because of the anxiety it would build if partners were to constantly get red lights or if one partner wasn’t being honest and the sensor didn’t match up with what he or she was saying.

Wingman
This concept was the one out of which Vive emerged. It utilized sensors as a way to help keep users safe and connected with friends on nights out. These sensors were to be built into a band that monitors and alerts others to dehydration, alcohol levels, and geolocation. This band included a social layer, which we thought of as being a user’s digital Wingman. The band would suggest relationship matches with others in the user’s area based on his or her digital profile. The band is worn throughout the day and users are able to recap all the people they’ve met and see potential for friendship or dating.

To keep our users safe, the Wingman concept was a system for vetting others. The key is that everyone, potential perpetrators and victims, all use Wingman. Since it is connected to an online profile, if someone isn’t using the band then perhaps he or she has something to hide and isn’t worth communicating with. The dating and relationship matchup part of our system could be seen as a Trojan horse, to get people interested in using it. They not only receive the dating benefits, but also get the added layer of security with biometrics tracking and alerts.

The biggest drawback in this solution was the method in which we proposed people would join and use Wingman. The system would rely on people buying and using the bands, which depends on things mostly out of our control, like public interest.

By adding in all these layers of interaction, our focus became skewed from our original research.
Early Concepts

Sex Guide: Whiteboard Brainstorming Session

Wingman: Whiteboard Brainstorming Session

Wearable Device: Whiteboard Brainstorming Session
Introducing Vive

Vive is a smart wearable designed to be desirable to young people, while keeping them safe and connected as they party. It is designed to be integrated into events that use wristbands as tickets, thus lowering the barrier to market entry. Vive measures the wearer’s biometrics related to alcohol consumption. It enables instantaneous connection to a Facebook profile, followed by connection to other friends also in the party group. Vive keeps an eye on friends while they drink, mingle and party, enhancing social contracts people already enter into when they go out. Vive amplifies existing social networks, making sure individuals don’t get separated from their group. When things get out of control, Vive makes sure a user is not alone.

FB Connect Screen
After slipping on the Vive band, touch it to a smart phone and tap the Facebook icon. A loading circle will appear. The user’s Facebook profile picture will then appear, confirming that his or her account is connected.

Sync with Friends
After users are connected to their Facebook profiles, they can touch the ‘sync with friends’ button. Everyone in the party group should touch devices and hold until they feel a confirmation vibration. Now the group is connected and if something goes wrong with one member, they will all be alerted.
Vive: Band Together

Timeline
The timeline keeps track of all of the new connections users make while out partying. They can revisit their timeline at a later date to review their connections and decide who to approve and deny for further contact. Information will not be exchanged until both parties have approved the exchange.
Vive: Band Together

User Flows
Vive’s interactions are simple. The following user flows illustrate how the band is used and its functionality.

**Vive Mobile Application**
- Open app
- Login with Facebook
- Click to Sync with friends
- Activate Bracelet via Bluetooth contact with phone
- Sync friends by touching bracelets

**Vive Device**
- Un-activated Vive bracelet
- Vibration from bracelet confirms connected to phone

**CASE 1**
- Bracelet internally monitors alcohol content with transdermal sensors and dehydration sensors
- Bracelet vibe’s for check-ins
- Pinch sides of bracelet to dismiss the alert, go find friend in need
- If a friend misses a check-in, the rest of the group gets alerted by their bracelet blinking yellow paired with a continuous vibration

**CASE 2**
- Bracelet internally monitors movement and connection with accelerometer and gyroscope sensors
- Bracelet monitors levels and user’s state with periodic check-ins
- If a friend’s bracelet has no readings after a certain amount of time the rest of the group gets alerted by their bracelet blinking yellow paired with a continuous vibration
Design Decisions

Remove the dating functionality
The timeline keeps track of all of the new connections users make while out partying. In earlier Vive iterations, as mentioned above, we included a matchmaking feature. This feature would pair up a user’s profile with others in the same manner as dating websites, and users would receive a vibration notifying them when a potential match was in their immediate area. After receiving feedback that this felt like an iteration of Tinder, we decided to simplify the design and eliminate this feature.

Retain the connect functionality
The redesign with a focus on simplicity led us to the connect feature seen in our final Vive product. The Vive band is linked with each wearer’s Facebook profile. By touching bands with another wearer and maintaining contact until they both feel a confirmation vibration, users can quickly and easily exchange contact information requests. These connections are tracked in the timeline feature of the Vive app so users can revisit them at a later time and decide who to approve (or deny) for further contact.

We felt that this connection feature was essential to our goal of keeping people connected and safe while not “killing the buzz”. The connection enhances the social interactions people experience while out partying. The ease of information exchange makes the device more attractive to wearers who aren’t as interested in safety, while still exposing them to this extra defensive level while in high risk social situations.

Market entry had a huge impact
We changed our focus from the specific individual, who we envisioned would order this product online, to a crowd. This is where the idea of ticketed events came into play. Ticket wristbands already exist and are commonly used at large, crowded events that involve drinking - exactly the type of events we are targeting. We saw this as an opportunity for Vive to enter the market. Vive bands would be distributed at the event in exchange for a ticket.

Visual alert for the person in trouble
In earlier versions of Vive, we included a visual alert on the “victim’s” bracelet as well as his or her friends’ bracelets. When the wearer missed a check-in, his or her device would flash red. This was meant to give a visual signal to the perpetrator, letting them know that the wearer was clearly uncomfortable in the situation and hopefully clearing up any misunderstanding. The visual alert was also meant to notify bystanders of the situation, encouraging them to step in. This visual alert could be misused, with the risk that it could hurt rather than help. The visual alert would be indicative of the wearer’s vulnerable state and could serve as a red flag that attracted people who intended to take advantage.

Integrate with Facebook
Instead of creating a whole new app that would require users to manage yet another social network, we decided to integrate Facebook into our concept. Facebook is widely used and contains users’ information that they would otherwise have to manually set up in a new app profile. By connecting straight to the user’s profile, time is saved and accounts are more difficult to falsify. A connection leads to an information exchange similar to a friend request, but the information is not exchanged until it is approved by both parties.

Target Audience
As we moved forward with developing our concept, our audience changed as well. Our original concept focused more on individual users in their late teens to early 30s. When our concept shifted towards use at ticketed events (e.g. music festivals, raves, club events, shows) our audience morphed into the crowd who frequents these events. The final Vive product is catered for the early 20s partying type, both male and female.
Design Decisions

Vive Prototype

Vive Finalized Product

Branding for Market: Finalizing color swatches

Detail functions of Vive
Sensors

Transdermal Alcohol Content
These sensors are currently used on repeat alcohol abusers. They measure the amount of ethanol excreted through the skin. Currently, there is a time delay of approximately one to two hours in sensing alcohol through the skin. These sensors are bulky, limiting the feasibility of incorporating them into our product at this point in time. However, we anticipate the miniaturization of these sensors over the next couple of years.

Dehydration
Alcohol dehydrates you as you consume it, and some party drugs can bring people to dangerous levels of dehydration. The dehydration sensor is a thin patch that measures hydration levels in real time and communicates the information to a user’s smartphone.

Bluetooth
Used to transmit data from the Vive to a smartphone. NFC and GPS are incorporated so wristbands connecting to each other can be identified and information is transmitted between the correct devices.

Gyroscope and Accelerometer
Included primarily to sense a total lack of movement in extremely high risk situations, for example if a user passes out cold.

GPS
is an optional inclusion. GPS can be used to track the location of friends, and it can be set up so that, should a friend leave a designated party area, notifications are sent to the party group. There are issues with the battery power needed for GPS, however, which need to be addressed before including it in Vive.
Next steps for Vive

As mentioned, we see Vive entering the market in places where alcohol is served and wristbands are the norm, like concerts, raves, and festivals. The band can also be part of the marketing and merchandising for venues that use it. In the same way people hang on to ticket stubs and brochures for events they went to, the Vive band and app can be great reminders of a safe night out. Once Vive has gained traction in the market, we envision it as something worn voluntarily. Users can head to their corner store and pick up a six-pack for themselves and friends before a night out. We envision Vive an essential part of a night out, much like a driver’s license or ID.