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Team 2 Executive Summary

Machine-to-Machine (M2M) solutions not only connect a lot of diverse devices to one signal network wirelessly but it also allows a two-way communication. Via radio signals, M2M enables different kinds of machine devices, which are network ready, to connect and share reliable real-time data. AT&T is one of the leading network companies in the world. It has one of the fastest and most reliable 4G LTE service in the nation. AT&T could be the company that provides network to the machines that implement M2M solutions.

Our team is building a device called iWear. This device is a mixture of google glass and some of our ideas. The key features of this device would be a camera, a projector and a motion sensor. The camera captures videos and images that you view through your eyes. The projector projects your images, music and any other kind of information on a wall or screen. The motion sensor helps you change your images and music according to your own convenience. This device would work
on 4G and Wifi and would be a device that implements M2M solutions and AT&T would provide us the 4G network we are looking for.

Introduction

The goal of our project was to come up with a product that utilizes AT&T’s network to make the user’s life easier. We researched about emerging markets for tech ideas and came upon wearable technology. Ever since Samsung released its Galaxy Gear smartwatch, wearable tech has become ever more popular among tech enthusiasts and average consumers alike. Wearable tech has many different types variations, including watches, rings, bracelets, and eyewear.

Customer Survey

1) What kind of wearable tech would u wear on a day to day basis? (headgear, smartwatch, bracelet, etc.)

2) What would you be looking for in your wearable tech?

3) Is style and looks very important for you?
4) How often do you use your smartphone?

5) What type of operating system does your phone use? (Android, iOS, Windows Phone, etc.)

6) What type of Telecommunication Company do you use?

7) How often do you share files between your friends, family, etc.?

8) Do you use you smartphone as a camera or do you have a separate one?

These questions were used to get a general idea of how people interact with technology on a day to day basis, and to determine how much ordinary people know about wearable tech. It was determined that if prices were lowered for wearable tech, a much larger group of people would consider buying it.
Google Glass was an important inspiration for iWear, it gave us a layout of how a proper Head Mounted Display (HMD) should look, and how it should interact with the user, not take over their sight, but almost not noticeable until the user interacts with something in their world. However, we determined that it was too expensive. Surveys have found that many people are interested in the device, however the $1800 price tag is considered too much for most people. As a result, we looked for ways to lower the price tag of our device. One simple way was to eliminate the device’s capability for its own 4G connectivity. By doing
this and connecting the device to the user’s cellphone’s 4G network via Bluetooth, we were able to cut the price tag by around $500.

### Needs-Metrics Matrix

<table>
<thead>
<tr>
<th>Metrics:</th>
<th>Measure Bluetooth and other short distance communications</th>
<th>Test various types of wearables, watch, glass</th>
<th>Test feasibility on human physical qualities</th>
<th>Enhance the user’s frame of reference</th>
<th>Test a network of systems</th>
<th>Look at various designs and outlooks</th>
<th>Use 4G and 3G networks</th>
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<td><strong>Customer Needs:</strong></td>
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<td>use a wearable tech. to integrate M2M</td>
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<td>deliver real time about health data</td>
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<td>augment the view of the world</td>
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<td>communicate meaningfully with surroundings</td>
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iWear Model

The iWear appears like a normal set of glasses, however one of the lenses is actually an HMD (Head-Mounted Display), which gives the user real time information. Also, the frame of the glasses holds a microprocessor, a lithium ion battery and a secondary battery, a Bluetooth transceiver, a mini-projector, and an 8 megapixel camera complete with flash.

Conclusion

The goal of this project was to create a device using AT&T’s 4G network and M2M ideas. We did a lot of external research before we came up with our idea and came upon the topic of wearable technology. Like mentioned in the introduction, wearable technology has been
increasing in popularity since Samsun came out with a smartwatch last year. The excitement was further increased by Google’s announcement of Glass, a headset complete with a small Head Mounted Display that would provide the user with real time information and quick access to the internet, camera, video and GPS. We decided to base our product loosely on the idea of Google Glass, however we aimed to make it cheaper and more accessible to the average consumer. Instead of using a prism-like HMD like the one used in Google Glass, we researched technology used in the helmets of F-35 fighter jet pilots. The visor of the helmet provides information that an external HUD (Heads Up Display) would normally provide. We sought to miniaturize this technology into a single lens, of size no bigger than a normal pair of prescription glasses. In addition, we sought to separate our product even further. We explored the ideas of mini-projectors being attached to cell phones, and came upon the Samsung Galaxy Beam. This was like any normal smartphone, however it had a mini-projector on the back that could project anything on the screen into a small image on a wall or desk. We determined this mini projector was actually pretty small, being able to fit into the frame of iWear. And so we implemented it, hoping it would provide the user with an easier way to share pictures, videos, or
whatever else they use iWear for. Another great feature of our product are the two motion sensors on the front and side of the device. To interact with the device, Google Glass users had a sole track pad type touch-sensitive platform built into the side of the frame. However, iWear users can interact with the device using hand motions on the side or front of the device without ever touching the device itself.

By eliminating the device’s independent 4G connectivity capabilities, we were able to cut the price tag by around $500, as mentioned in the External Research section. Instead, the device connects to AT&T’s 4G network directly through the user’s iPhone or iPad via Bluetooth. The user will experience almost no difference, and the device is now accessible to a wider range of consumers.

With iWear, we have created a new category of wearable tech, one that is more available to the average consumer yet offers impressive specifications complete with a long list of features that enhances the user’s everyday and makes sharing files easier than ever.
References


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