



# Spectro

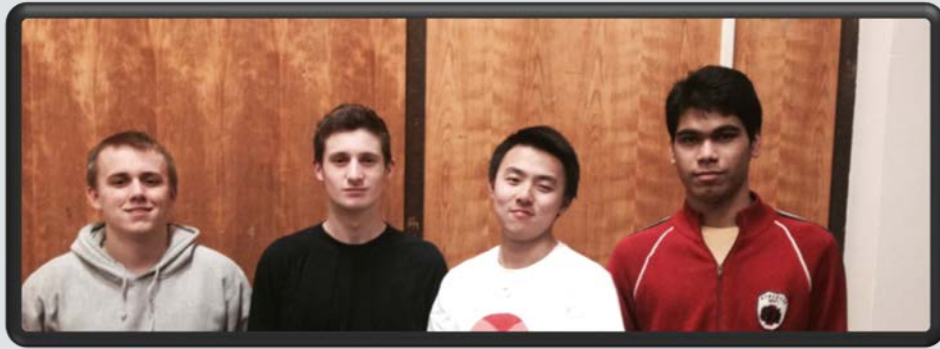
TEAM TBD

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Section 002

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## ABSTRACT

Based on profound insights into global R&D activities, Smart watch Group expects the number of companies with smart watch offerings to grow from 40 to 200 until the end of 2014. The market volume of the smart watch industry will increase from USD 0.7 to 2.5 billion in 2014.

The goal of this project was to design a communication device that will be sponsored by **AT&T**. Our team has decided to create a watch that helps simplify life. Current smart watches on the market are lacking in technology and not visually appealing. The watches need to be modernized and more practical in order to meet the customer's needs. Because of that, the watch that our team has designed incorporates new features that previous watches did not have, as well as improves on current features available. Through teamwork and extensive research, our team has come up with a design that addresses previous criticisms of smart watches.

## INTRODUCTION

Our team was asked to create a product and system that used both current and future technologies in order to make the consumers life easier. We have incorporated **Machine-to-Machine** solutions in order to enable two way communications. AT&T, in itself, is a powerful communications company that has the resources to make this kind of communication possible. AT&T offers the best wireless coverage of any company in the U.S, as well as the most reliable 4G LTE network. These capabilities have allowed our group to create our product without the fear of inadequate connectivity. Throughout this report, you will be able to find the design of our watch and it's interconnectivity through charts, tables, and pictures.

## MISSION STATEMENT

As a team, we set a goal of creating a product that not only benefits the consumers, but also proves to be a viable asset to AT&T. The watch will be targeted to a specific demographic, making it as affordable as possible for them, **without compromising** consumer requirements.



## CUSTOMER NEEDS ASSESMENT

Customer Needs	Needs Statement
Needs to be affordable	Total price of watch will compete with competitors
Watch needs to be simplistic	Interface will be intuitive
Needs to be visually pleasing	Watch will be thin and lightweight, with streamline design
Needs to have real-time communication	Will connect over AT&T services with other devices
Must integrate with other technology	Watch will be integrated with car and home
Must have health option	Will include health package

The design of this product is directly modeled off of the customer's needs, and put into needs statements that helped us create the initial parameters for our design. The design was modeled off of need statements that we created from the customer's needs.

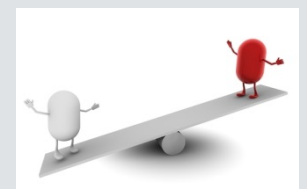
## EXTERNAL RESEARCH

### PRELIMINARY RESEARCH

In order to accurately fulfill the needs of the customer, we needed to do some preliminary research of smart watches. Through extensive research our group determined that the watch needed to incorporate the most advanced technology available in order to include all of the features required to successfully integrate with other technologies. We also noticed that a smart watch needs to be slim, intuitive, and visually appealing so that the customer will actually want to purchase it. By fully understanding the concept of what is a smart watch, we were then able to better decide on a design of the watch.



### BENCHMARKING



## # Case I.

### SONY SmartWatch 2



### Advantages

Sony Smartwatch2 has the Android wireless accessory, which expands Android experience and introduces new and exciting ways to live and communicate. It interacts with smartphone over Bluetooth and what's happening life is **mirrored the watch**. Choose from a wide range of Smart Watch 2 apps available at Google Play™ and be among the first to adopt a Smart Watch lifestyle.



### Disadvantages

- Pair Android phone with the watch via Bluetooth. **Keep it paired.**
- Install a proprietary Sony app that manages settings for the watch.
- Download **every single individual** feature for the watch—calendar, email, Facebook, Twitter, weather, it goes on and on—as a separate app. Each needs to be downloaded and installed separately.
- Wonder why these crude basics **aren't pre-loaded** on the Smart Watch.
- Wonder why the Smart Watch has **no settings options of its own**, but rather has to be managed with a phone.





## # Case II.

### South Korean T-money



### Background

South Korea is of a country attuned to the potential of technology, both to improve lives and increase efficiency. One of the country's most impressive feats of innovation is the way it has eschewed cash in favor of a robust digital system called "The T-Money".



T-Money can be used on trains, taxis and buses; it's accepted in most major shopping chains, online, at vending machines, in bars and restaurants, and even at theme parks and museums.

Recently the system has moved to NFC which, combined with a mobile app, means you can ride the subway, take a cab, or buy some kimbap with a swipe of your smartphone.



### Quick Conclusion.

Through the bench marketing, our team came up with the idea that smart watch cannot thoroughly replace the smart phone, under the current technology, within recent 2 or 3 years.

But most of the companies right now are struggling to mirror all the functionality of phone to the watch, which our team thought is a not right direction. **Instead of that**, our team determined to three major direction the phone may not easy to do or cannot do.

1. **Virtual wallet** (not only the banking count but also personal info)
2. **Health Package** (detect and analyze every day motion and store the data into the cloud)
3. **M2M communication** (wireless control with car and house applicants)

## CONCEPT GENERATION

Our group conducted a brainstorming session in which we sat down together and came up with possible ideas to use in the design of our smart watch. Here is a list of the initial ideas:

- Virtual wallet
  - Personal identification cards
  - Credit/debit cards/City pass/Student ID
- Health package
  - Heartbeat sensor
  - Blood pressure monitor
  - Measures Calories burned
  - Measures Distance traveled
  - Measures Steps taken
  - Measures Sleep quality
- GPS
- Pathfinder features
  - Barometer
  - Thermometer
  - Altimeter
  - Compass
- System
  - Android OS (Default)
  - Programmable
- Charging
  - Wireless Charging
  - Solar and kinetic charging
  - Spare replaceable batteries
- Security
  - Fingerprint scanner
  - Facial Recognition



- Voice features
  - Voice recognition
  - Voice control
- Durability
  - Water proof and dust proof
  - Shock proof
- M2M Communication
  - Integration with car/home
- Other Function
  - Atomic time keeping
  - Camera (2MP)
  - Projection of keyboard and video
  - Radio Station

Our team recognized that logistically, we could not possibly implement each concept into our watch. With that said, the concept generation portion of the design process is especially important because it allows the team to choose from various options that they feel fit into their requirements.

## CONCEPT SELECTION

With the list of ideas that our group had come up with, we went through a scoring process that ranked the necessity of the aspects stated in the concept generation section. The ideas that were finally selected were:

- Virtual Wallet Features
- Health Package Features
- GPS
- Pathfinder Features
- Charging
  - Wireless
  - Solar/Kinetic
- Security
  - Fingerprint Scanner
- Durability
  - Shock proof
  - Water proof
  - Dust proof
- M2M Communication
  - Home/Car

- Other Functions
  - Camera (2MP)
  - Atomic time
  - Radio

The listed ideas were selected to be in the final design of our watch. Our team felt as though these aspects were the most crucial in creating a watch that simplifies the life of the consumers, but also complies with cost requirements.

## EMBODIMENT DESIGN AND FINAL DESIGN DESCRIPTION

The final design that our group decided on was a combination of the features we felt fit the customer needs assessment. Initially, our group decided to try to design a device that replaced the need for a consumer to carry a phone and a wallet. Through the design process, we decided that the best course of action for our watch would be to still attempt to eliminate the need for a physical wallet, but make the watch an extension of the phone rather than replacing it. Our group conducted extensive research regarding topics such as two band system, projection, additional batteries, and facial recognition. This researched showed us that it was not logical to include these features with the limitations of the watch.

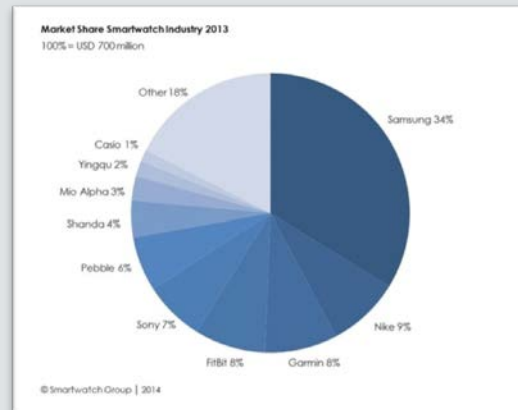
The final features that our group has decided on were the ones that we felt properly met the needs of the customers. Aspects such as the Virtual Wallet, M2M, and Health features add luxury options for the consumer to add to the watch based on preference. Other features, such as GPS, Pathfinder, and Durability, are staples of the watch that make it a resourceful commodity. The design of the watch as a whole is tailored to giving the consumer choices. The consumer is able to pick and choose the features that they want, which is what makes the watch revolutionary.



## CONCLUSIONS

### FINAL MARKET STRATEGY- PARTNERSHIP WITH SAMSUNG

During the process of planning the market strategy for our smart watch, our group came to the conclusion that it would be much more feasible to market the watch through a company that was already established. We decided that Samsung would be the ideal company because their past interactions with companies such as Google in the production of Android phones, as well as their large share of the current smart watch market. Already having a foot in the door the smart watch market is the first step in creating a product that will have a hold on the market in the long run.



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### FINAL EVALUATION

The final design of the watch ended up being a success because it met the needs of the customer, and did so as the extension of the already existing smart phone. The design of the watch allows the consumer to pick and choose the features they feel are the best for them. The standout features of the watch will attract customers through the simplification of their everyday lives. This product also has the possibility of being very profitable for Samsung and AT&T. Current smart watches on the market fail in comparison to the features that are incorporated in our watch. Overall, the watch will appease the target customers and will act as an example for engineers in future designing projects.



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