**CS352 Project 1-2-3**

**Proposal**

**Team Members**

* Aryan Aziz
* Allyce McWhorter
* Roger Smith
* Ismail Orabi

**Project Description**

Usability poses a huge problem for designers of websites and products. Whether it is a website, car dashboard, store layout, tv guide menu, or anything that you use in your day-to-day life; everyone wants to produce the best user experience for their clients.

The same is also true for bicycle riders, where usability is arguably even more important than in other activities. Riding, like driving, requires all of your attention to be on the road while always being on your toes and aware of your surroundings. Because of this, we know that there are 2 major features we must gear towards: simplicity and responsiveness.

**Simplicity And Responsiveness**

When every second counts and looking away from the road can greatly effect safety, nobody wants to spend extraneous time with unnecessary features or menus. This is why the focus of our design will revolve around creating the simplest, easy-to-use interface while also providing the data and statistics necessary for user satisfaction.

We are aware that different sets of data are important to different types of users, and that is why we have agreed that the best option for maximum extensibility and marketability is to create a single device that will cater towards both the road biking and off-road biking crowd; allowing the user to select which mode or data set they want displayed for their ride.

Of course, a user doesn’t necessarily have to stick with one menu the entire ride and should be able to easily and quickly switch modes during their ride. The device should also be able to switch between these menus with little to no lag.

**Size and Durability**

Nobody wants a huge device hanging from the handlebars of their bike; and even less people will want something that will weigh them down and effect their turning ability. This is why it will be vitally important for us to research an optimal screen/device size while maintaining as little additional weight as possible.

And of course, while riding, “bumps” do happen. Whether it’s hitting the occasional pothole, rough roads, or taking a minor spill; everyone’s bike takes a beating. We need to ensure that the GPS is able to take the same beating that your bike can.

**Extra Features**

At this point, you may be asking “if the necessity of a bike rider is so similar to a car driver, why not use car GPS systems?”

The reason for this will be the extra features and data sets that car GPS systems either do not have or do not display to the user. A few that we have brainstormed include:

1. Different Modes/Interfaces
   1. The necessities of a road biker and an off-road biker are different and require different sets of data or maps, these can include:
      1. Map View
      2. Turn by turn directions
      3. Fitness tracking statistics
      4. Hybrid
2. Route targeting
   1. The route of a cyclist can be much different from a driver and should cater towards some possible characteristics including:
      1. Elevation changes – Some riders may want as flat of a ride as possible, some may want hilly.
      2. Low-Traffic – To ensure safety and a smooth ride, some riders may want to avoid areas with high pedestrian or car traffic.
      3. Shortest Bike Route – Since bikes can take some paths or roads that cars can’t, it should effect their routes accordingly
3. Social Features
   1. Maybe your friend rode a route they really loved and wanted to share it? Maybe someone saw that a road has a pothole and to be careful of it? Maybe you want to share your latest fitness statistics. All of these and more should be possible.
4. Voice Features
   1. This can include both for the user and for the device.
      1. The cyclist can speak commands to the device to change their mode or route.
      2. The device can speak commands to the rider to notify them of any directions or items on the road that can effect their ride.

**User Base**

According to the 2012 National Survey of Pedestrian and Bicyclist Attitudes and Behaviors (conducted by the National Highway Traffic Safety Administration), 18% of people ages 16 and older rode a bicycle at least once during the summer of 2012. This means that in the United States alone, in just the summer of 2012, there were 40,000,000 people on top of a bicycle.

According to the American Journal of Public Health’s study, Bike and ride trips account for 3% of all public transport trips.

According to the Earth Policy institute, in 2007 there were 130 million bicycles produced in the world and less than half that amount of cars produced (52 million).

USA Today reports that there were nearly 200,000 people bicycling in the city of New York in 2009 alone (an increase of 26% from 2008).

Although not everyone included in these statistics above are going to necessarily need this device or become a consumer of it; the statistics are there in that there is a huge user base that could really benefit from a durable and simple to use GPS system for the masses. Most likely our core user base will be both men and woman above the age of 16.

**Why Us?**

Without “tooting our own horn” too much, we are all smart and hard working and have an excellent team with quite a bit of experience in the cycling world. We are all very excited for this project and each of us feel like we can really make a difference by producing a product that really does fit all of the needs above.

Fact of the matter is,



**Predispositions**

**What do you know?**

* Size and weight plays a huge factor
* Device needs to be easy to use and allow for quick access to menus and changes.
* All bikes take a beating and the device should be able to take a similar beating.
* The needs of road bikers and off-road bikers are different and should be accounted for.
* There is a huge userbase across the world for bikers that can be tapped into.
* In terms of usability, the user should be treated like a car driver and should follow the same style (not distracting, simplicity, no extraneous info, etc).
* There needs to be a clear set of extra features to promote people to use a bike GPS instead of a car GPS.

**What do you not know?**

* Exactly what the different needs are between a road biker and an off-road biker.
* What kinds of menus/interfaces a biker could want or need.
* What kinds of data should be accessible and made available.
* Is a touch screen preferred or physical buttons
* What extra features could a user want. We have a few but are there any missing.
* How the interfaces and sizes of the current market GPS systems work.
* If the current market GPS systems have the various extra features or more/less.
* What the most popular menu is/which should be set as the default when a user hits home/starts the device.
* How many bicycle GPS systems have currently been sold and how many are produced each year.
* What the most optimal place to mount the device is for the best user experience.