**Jake Rauchen, Kevin Tayah, Matthew Horger**

**Project Script**

(Title Slide) - Kevin

* Hi there, we would like to present our prototype called Elevate for you today.
* A short summary of the project is that it is a custom build safety helmet for all riders to use along with a mobile application that supplements their experience.

**Hi I’m Kevin, Hi I’m Matt, and I’m Jake. We’re Group 46.**

(Motivation) - (Jake)

* Our main motivation behind our prototype was the safety of riders.
* Talk about safety of bicyclists in cities / cars in blind spots - we hoped to solve this issue with our prototype helmet.
* Talk about the enjoyability of skaters and hills - we hoped to solve this issue with our mobile application
* Talk about the potential for our prototype to be used in competitions us as the Tour De France

(Helmet Demonstration) - Matt will introduce the helmet

Jake will put on the helmet and Matt will stand to his right side as he walks by. The helmet will beep. Matt will show the data being produced from Arduino IDE. Demonstration over after Matt explains the issue with the other sensor and how it won’t work properly all the time.

(Mobile Application Demonstration)

While Jake and Matt are demonstrating the helmet, Kevin will plug in his phone to the provided adapter to prepare the application demonstration. Jake and Kevin will showcase the application and all that they have worked on. After the mobile application demonstration is over, the presentation will resume with the slides

Requirements fulfilled - (Matt)

* Before we devised our prototype, we had some requirements that we wanted to deliver
* At the end of our project, we are proud to say we delivered the modular arduino helmet for riders
* Rechargeable battery module to power helmet (users have to purchase a wall charger or use disposable batteries if they don’t want to charge them)
* A mobile application as demonstrated by Kevin and Jake for Android
  + Ran on iOS emulator
* Provider for our Python server / mySQL database for GPS Data (Plone)

Further Requirements - (Matt)

* Time did not permit us to reach all of our requirements
* Operational Database with Plone Content Management System
* A working GPS Connection with the Helmet
* Collision Sensor implementation
  + Won’t receive the sensors until April (it’s coming from China)
* A working Search Bar in Mobile Application for users
* Data connection between Plone / Helmet using some transfer method that will be discussed later
* Easily accessible JSON output from arduino
  + Currently has to be plugged into pc that has arduino ide installed, would be nice if we could move this to the cloud

User Feedback - (Kevin)

* Upon short testing and observations, we noticed that our prototype was not perfect or as expected
* Safety of helmet modules needs to be improved - say someone gets in a crash and the modules are damaged
* Charging the helmet batteries takes too long (roughly 8 hours for a full charge that will only a day)
* Greater baselines for the modules
  + Our ultrasonic modules only have a range of 50 centimeters
  + Don’t know how fast a bike can be going for the helmet to alert the user / the user can react with an object in the blind spot
  + How can the user hear the buzzer in loud environments (louder buzzer)
* Mobile Application for Apple
  + Everyone uses apple

Lessons Learned - (Jake)

* Upon working on our prototype and completing our first mock device, we learned some valuable lessons
* Data connections between the server and our prototype are expensive and hard to establish
  + GPRS (cell service) - $10 / month
  + WIFI - 40$ a month
  + Will the user have to pay for this?
* Mobile application building takes awhile
  + Talk about setting up google maps to work and how long it took to develop every aspect
* Hardware isn’t compatible with software all the time
  + Arduinos only can pair with android devices for data transfer
* Teamwork is vital to success
  + One person couldn’t do all the work in this project

Future improvements - (Matt)

* Obviously, we would like to continue with this prototype in the future as we see it has potential for the community
* We need to finish our requirements as timely and effectively as possible
* Potentially partner with a business for baseline research
* Overall, a great deliverable in the time span and the amount of people on our team
* Project can go much further with more funding / time / knowledge or expertise of programming skills and techniques
* GANTT Chart