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CI-102-064

Team 46

**Elevate**

*A custom built safety helmet for recreational riders with a supported mobile application that supplements the riding experiencing.*

This project will develop a modular helmet that allows users to detect blind spots, record collisions, and monitor GPS coordinates and features in order to track their rides. The helmet will be developed with an Arduino Nano processor (the heart of our modules), HC-SR04 ultrasonic modules in order to detect objects in blind spots, collision sensors to detect impacts, and a GPS breakout module; all powered by a 9v battery. The hardware portion of this project, which will not be challenging, will be accompanied by a mobile app (which will be challenging to develop), initially for the Android platform, that allows users to pinpoint specific routes with detailed elevation maps using Google’s JSON api’s. The purpose of this app is for users, such as skaters and cyclists, to initially test inspect their desired route in order to determine the rate of elevation change in order for their riding purposes, such as workout, coasting, etc. This initial testing phase will be free for users. However, this project could be potentially sold to skating and racing companies as a way to increase the safety of the participants. It could also be sold to supply companies in order to increase the demand of these custom designed helmets. The app, upon commercialization, could also be downloaded for free by multitudes of recreational riders who look to plan ahead and enhance their ride according to how they would like their ride to be.