Product Description: Mesh Network Vehicle Communication and Detection

1. **Team Name and Team Member Names**

Team MNAV-Autobots: Christy Roney, Jacob Grunwald, Connor Carlson, Melissa Mantey, Megan Robinson, Maria Rodriguez

2. **Project Sponsor**

EEF/NHTSA/Ourselves

3. **Problem Statement**

Research shows that 90 percent of crashes are caused by human error. That's why many government institutions, such as the National Highway Traffic Safety Administration (NHTSA), and almost all major automakers are focusing on systems that allow the vehicle to become a partner to the driver by monitoring a car's surroundings, warning the driver of danger, and even taking control of the car in some situations. Our product is trying to help lower the amount of collisions based on human error.

4. **Product Solution**

Our system will be comprised of a mesh network that will communicate acceleration, braking, directional signals, real-time steering, and relative location data between vehicles to aid in the development of autonomous cars for collision prevention.

5. **Need for/Benefits of Product**

This product will alleviate traffic and provide information for government offices to study and predict traffic patterns. Direct vehicle communication will be influential in preventing accidents in areas where traffic is often dense such as big cities and major highways. Our device will be the medium for communication and coordinate speed in order to control traffic as well as allow cars to work with the emergence of autonomous vehicles to help integrate the two in traffic.

6. **Important Product Features**

Our product will be able to communicate in remote locations with each other so that it can work relatively everywhere. The device is private in order to keep safety. The device is also easily integratable in both new and older models of cars to reach the people we need it for. Our device will communicate vehicle safety parameters such as: turn signals, acceleration, speed, wheel position, braking, and relative location. This will inform the drivers of these critical driving parameters and inform their decisions to relieve traffic pressure.

7. **Project Risks**

Considering the project's' scope we have determined risks in decoding the data from sensors already integrated in cars. This data may be too complex for our device to process and communicate quickly. Another risk that is more immediate is our sources of funding. While it is nice to come up with our own project it is difficult to find organizations willing to listen to our

idea. As seniors our project is very complex and our time is becoming an issue. A potential risk could be the final stages of testing when we are using our own vehicles.

Sources

https://www.consumerreports.org/cro/magazine/2014/04/the-road-to-self-driving-cars/index.htm >>> cool feature heat and sensors in order to tell if there's a vehicle like scooter or motorcycle etsc.