



## 1. Objectives

- Develop a simple cost-effective system to detect potholes and icy road conditions for municipality
- Use GPS module to detect vehicle location
- Use a real-time operating system to schedule different sub-systems
- Send the data to the municipality to optimize road repair and snow removal
- Website with Google Maps API is used to display data to users

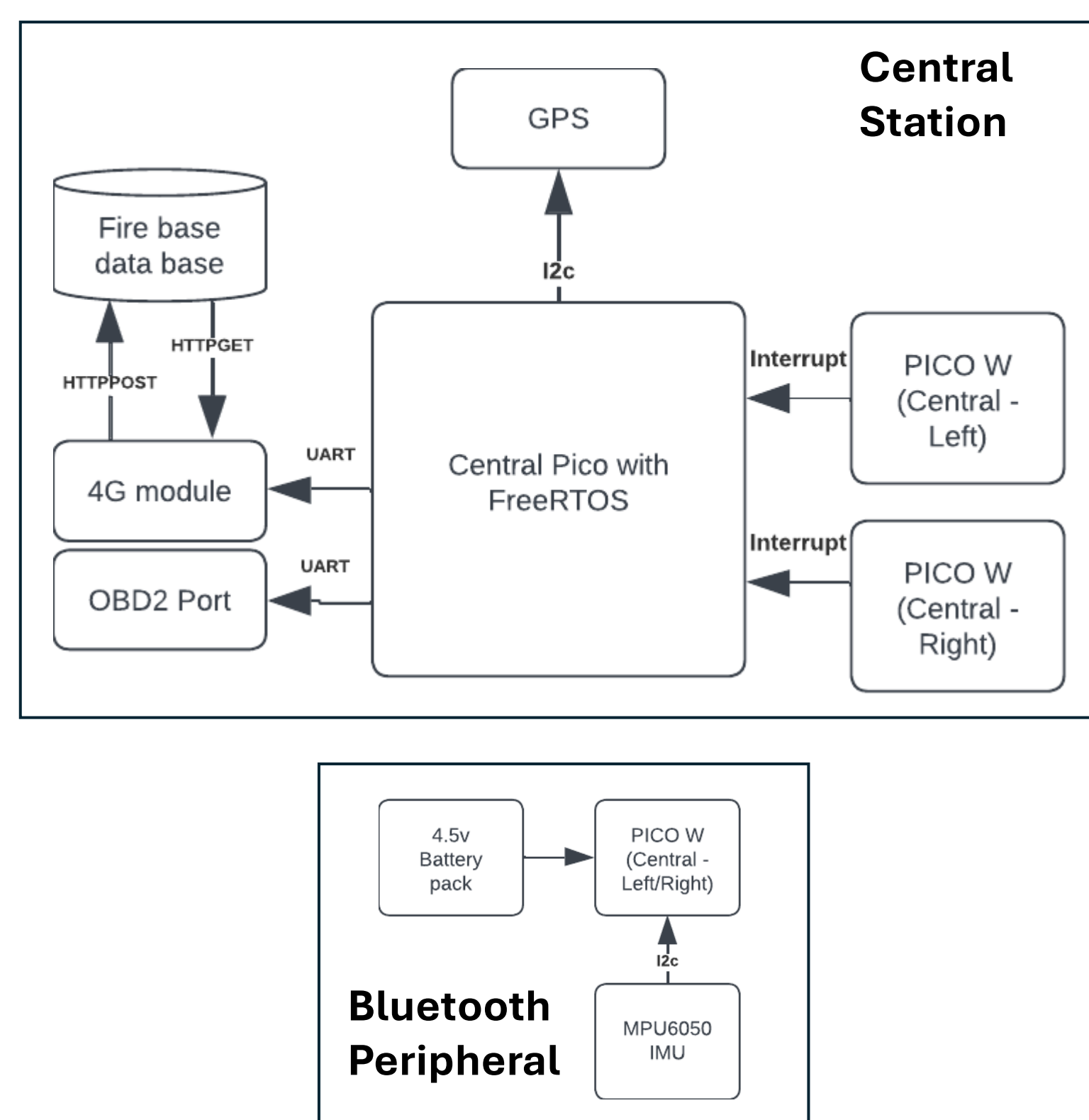
## 2. Potholes

- Classify pothole into green, yellow, amber, and red
- Attempt to achieve 80% accuracy when detecting potholes
- Use accelerometers mounted on a cars suspension to detect potholes
- Accelerometers send data via Bluetooth to central board
- Pothole data is bundled with GPS data and time
- Data is sent over 4G to a remote database using HTTP protocol

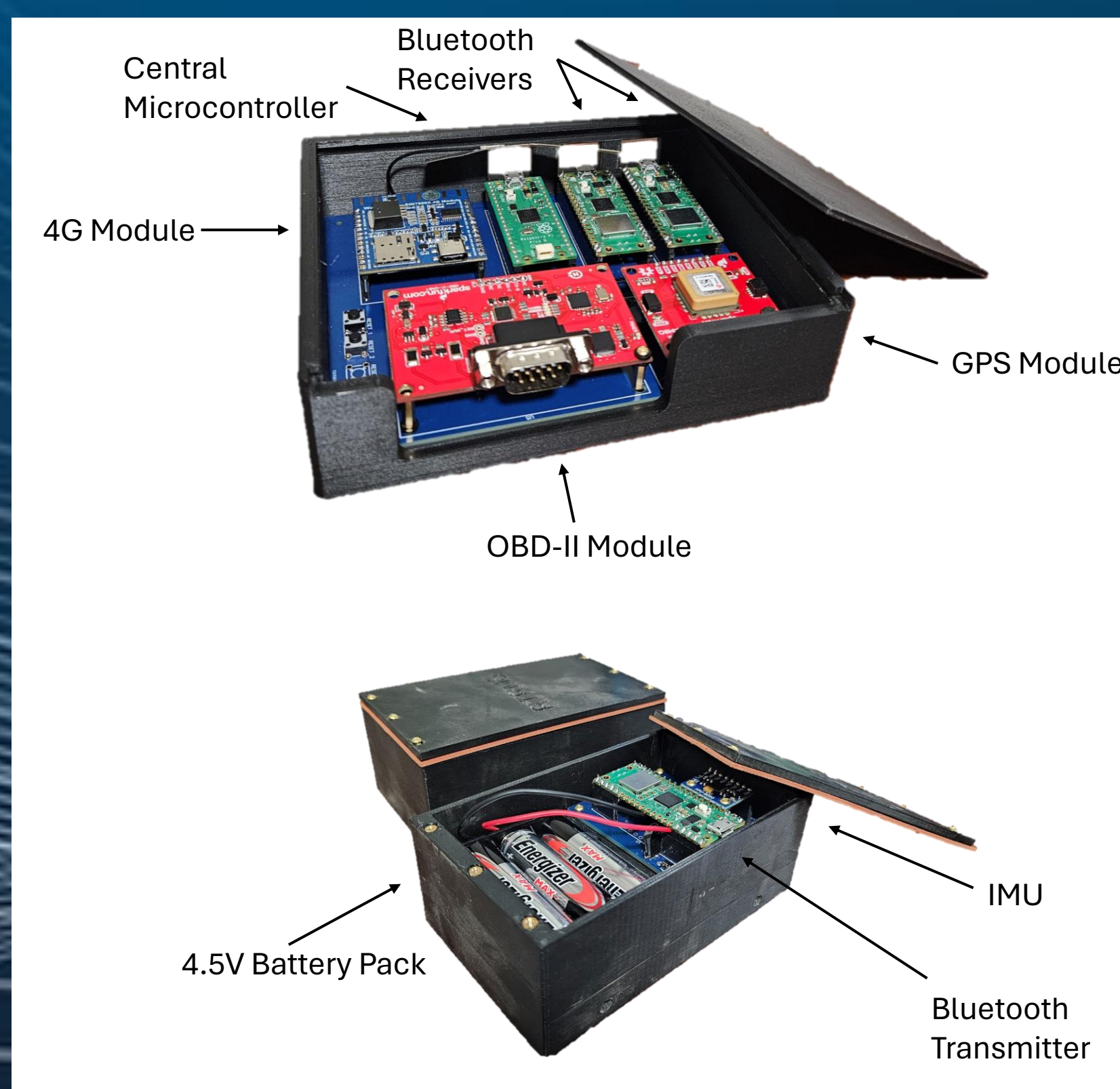
## 3. Slipping

- System connected to the On-Board Diagnostics Port (OBD-II) in vehicle
- Use OBD-II port to read vehicle speed and state of the traction control light
- When a vehicle slips, GPS data is gathered and sent to a database over 4G using HTTP protocol

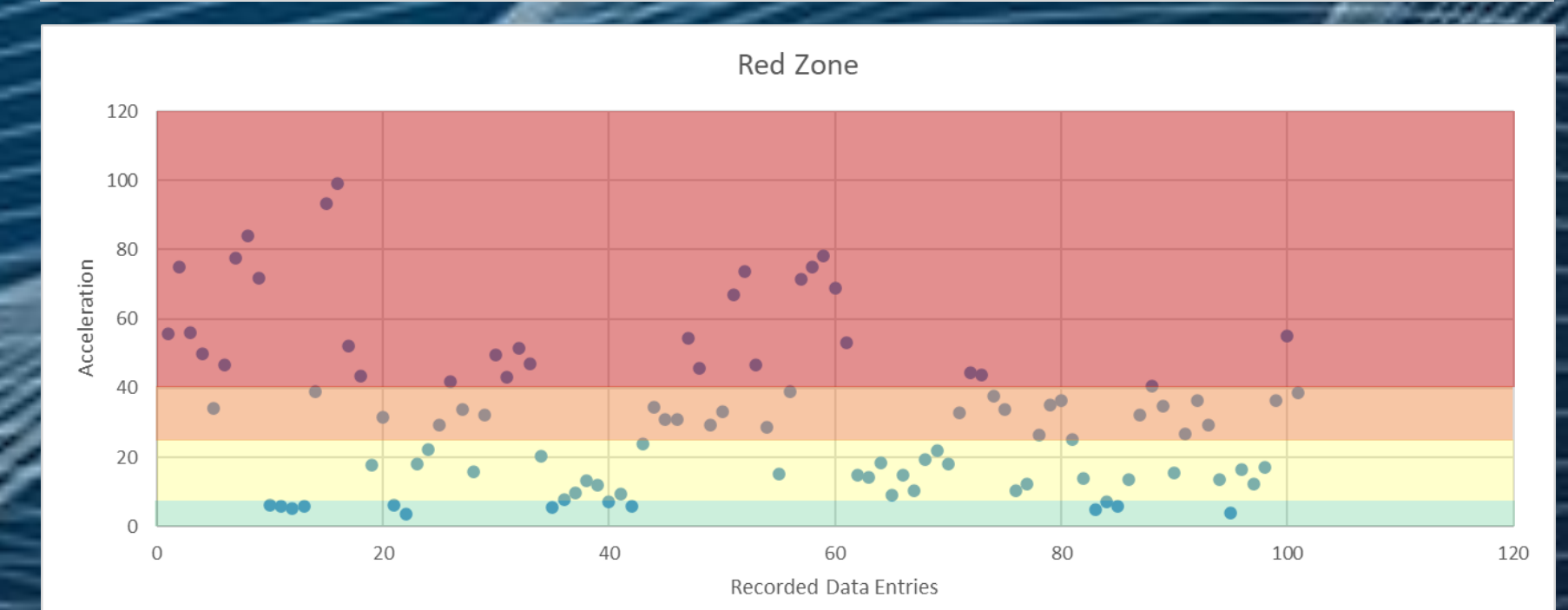
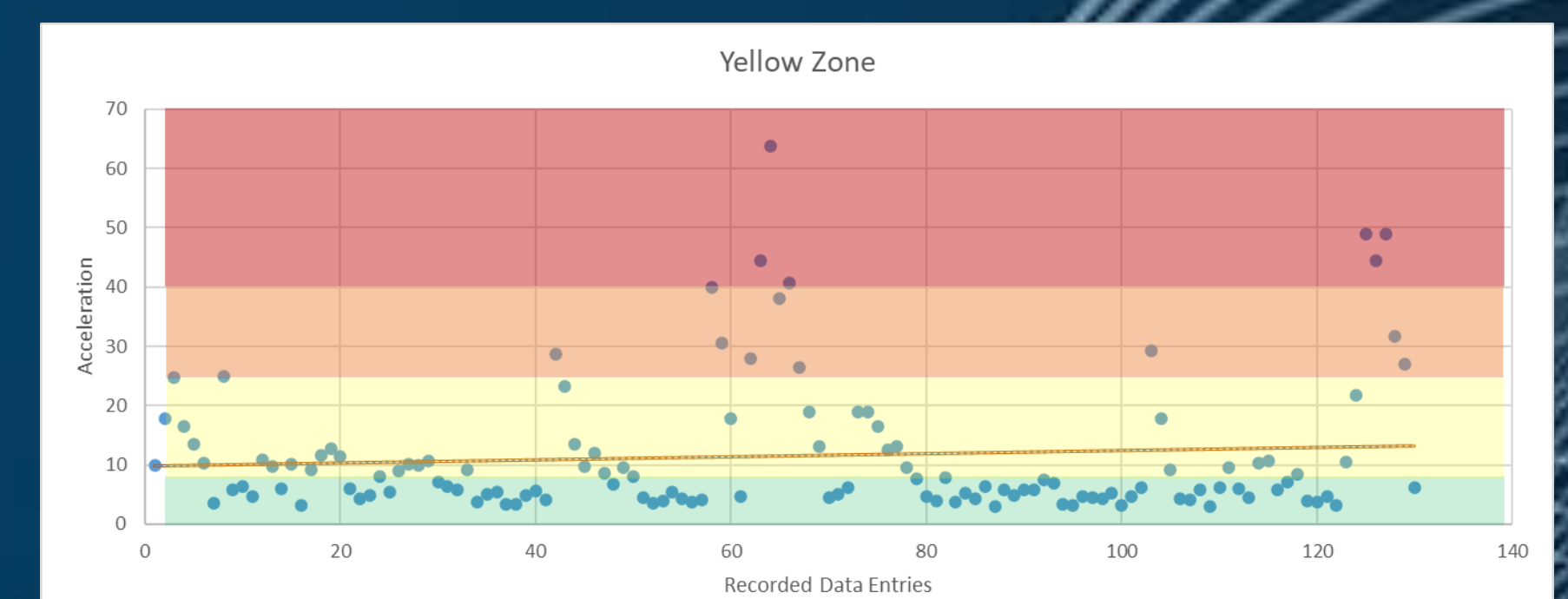
## 4. Block Diagram



## 5. Device



## 6. Results



Graphs show accelerometer data when going over yellow and red potholes