**Implementation of In-Vehicle and V2V**

**Communication with Basic Safety Message Format**

**Summary**

In this project they are focused to implement V2V communication system

that will collect vehicle related data and transmit it over Wi-Fi to the vehicles The system includes sensor data collection ECUs communicating a vehicle’s data to a Vehicle to Infrastructure ECU using Controller Area Network and V2I ECU enabling V2V communication using Wi-Fi modem.

In this project they are used Arduino, GPS sensor, speed sensor module, CAN communication module and a Wi-Fi modem.

In a V2V environment the vehicles can talk to each other in real time which will help in sharing the information that is useful in enabling safer mobility of automobiles. This project the implementation of an on-board unit  that will enable the communication of real-time data collected from the vehicle wireless through Wi-Fi to the vehicles in the range. The communication protocols used for this are CAN, for in-vehicle communication, and Wi-Fi for V2V

communication. GPS sensor, speed sensor, potentiometer are used for data collection from vehicle and is interfaced with Arduino boards to act as data collection ECUs.

**CAN (Control Area Network)-**

The CAN is a message-based protocol, which means that message carries the message identifier, and based on the identifier, priority is decided. There is no need for node identification in the CAN network, so it becomes very easy to insert or delete it from the network.he CAN is a two-wired communication protocol as the CAN network is connected through the two-wired bus.

**GPS sensor & Speed sensor-**

It’s a satellite-based navigation system that analyzes your location,velocity and time synchronization GPS helps you get where you are going from point A to point B .GPS module detect exact location of the vehicle Speed sensor it detect the speed of the vehicle.The speed sensor, an essential component for the operation of several on-board systems, allows the magnetic rotation speed to be measured in order to provide a voltage corresponding to the rotation speed.