

Establishing a Gateway: The CAN Conditioner

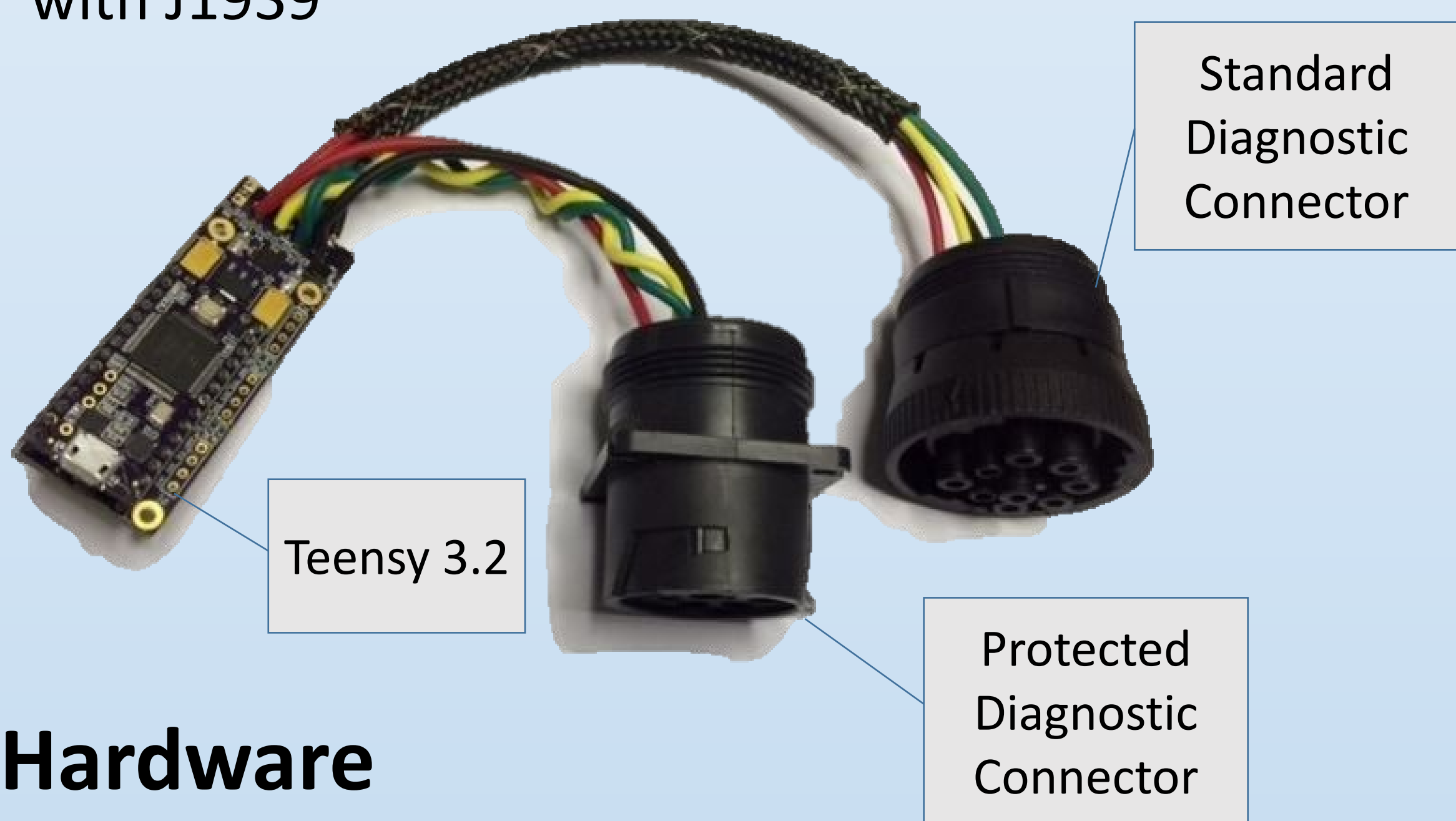


Hayden Allen
Advisor: Dr. Jeremy Daily



Objective

- Design a low cost solution to protect the CAN bus from inadvertent bus overloads, or malicious software from 3rd party devices connected at the diagnostic port
- Develop a CAN bus gateway for the J1939 protocol
- Filter messages sent to the device in one direction, allow all bus messages to pass through on the other direction
- Develop Open-Source software for communication with J1939



Hardware

- Teensy 3.2 Arduino Compatible Microcontroller
- Custom designed expansion board giving a Teensy two CAN channels (FlexCAN and MCP2515).
- 9-pin connectors used to offer compatibility with factory diagnostic connection.

Testing

- Testbed results show proof of concept.
- Successfully defended against Denial of Service attacks while allowing normal messages to be passed.



Program Logic Flow

