**SUMMER PROJECT- TEAM 3**

**B-FERL: Blockchain based Framework for Securing Smart Vehicles**

Smart Vehicles like Connected and automated Vehicles (CAV) are an advancement in the transportation technology. They come with a huge array of functionalities and provide significant benefits like decline in congestion and road fatalities. However, increasing automation and connectedness broadens the attack surface and heightens the likelihood of a malicious entity successfully executing an attack.

The problem arises due to centralized design of in-vehicle network and issues with data availability and reliability in case of successful attack of the ECUs.

Hence, we propose a Blockchain Technology that has the potential to address the aforementioned challenges including centralization, availability and data reliability.

Blockchain Technology provides a decentralized security framework for in-vehicle networks. It introduces an initialization operation for authentication and a challenge-response mechanism to ensure the integrity of the vehicle’s in-network. We conduct a qualitative evaluation of B-FERL to evaluate its resilience to identified attacks. We characterize its performance via extensive simulations using simulators like CORE simulator.

B-FERL doubles the detection and reaction mechanism offering adequate security to vehicles and the vehicular network.

This project uses tools like Github, Notion, Network Simulators-CORE simulator, PKI.