Real-time communication: Vehicle to Phones

by

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Project Description

Our proposed system will use a device that will process the internal data gathered within the car to generate text messages which can then be send to owner's cell phone. The system will act as a security device, by sending a text messages to the owner if the door is opened, the engine is on without a key in the ignition, and/or the window is broken. The device will be developed in such a way that it uses existing car technologies such as CAN protocol to generate the data.

Motivation

When there is damage or theft on a vehicle, the response time is slow because of the lack of communication between the vehicle and the owner. To reduce or eliminate this response time, this project will investigate real-time solutions by combining cellular technology with vehicle electronics.

Background

The technology for communicating with vehicle electronics and cellular devices exists. For example, the OnStar technology uses GPS, cellular technologies, and vehicle electronics for safety, communication, and vehicle diagnostics features. Information about the car is transmitted to central OnStar facility via satellite network. This project focuses on transmitting safety information to the owner directly via text message.

Work Plan & LogBook

Please refer to the attached files

Deliverables

The system should be capable of detecting unlocked doors, broken windows, and when the car engine is turned on without a key in the ignition. From those actions, signals will be gathered and then digitized to generate a text that is sent via cell phone to the owner.

Alternatives Approaches

To translate the CAN message from the vehicle control unit to cellular device, our three proposed approaches are:

1. Using Software and hardware devices to translate the CAN protocol for usage by a cellular device.
2. Using a developer application tool to translate the CAN protocol which limits the cellular device to be an apple, blackberry or android phone.
3. Using a WiFi-internet hotspot in the vehicle to send text or email to vehicle owner.

Milestone

The major milestone our group experienced was agreeing on a single project. Our group considered three possible projects.

1. Creating a computerized foosball table that pits a computer against a human opponent,

2. Designing a charging device for apple products using a mechanical exercise bike.

3. Devising a vehicle security device that texts the owner of the vehicle about possible break-ins.

Our group decided to design the texting security device for a vehicle, as the project will envelope all of our electrical skills, and the project could be completed within the allotted time.

Log book grade (25%): _____

Report grade (75%): _____

Total Grade (100%): _____

Supervisor's Comments:

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Supervisor's name (Print) Signature Date

Notes for the supervisor:

1. Please return the marked hard copy to Prof. Tao Lu by Monday, October 23.
2. Attached additional pages for comments if necessary.