OBD Stuff and Things

Project Concept Document

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1 Introduction

Every car in the United States since 1996 is required, by law, to contain on-board diagnostics. This standard, codified in SAE J1939 as on-board diagnostics II (OBD-II), is used for everything from reading fuel levels, to checking engine warnings for diagnostic purposes. The OBD-II specification specifically requires cars to make available a port in every car that can be used to read messages. A device is then plugged into this port to read messages over various protocols implemented by the car manufacturer. Currently, technicians must manually plug in a device into this port in order to read OBD-II messages. Our project aims to add wireless functionality for OBD-II via Bluetooth to be interfaced with Android compatible devices. Furthermore this project aims to make communication cryptographically secure.

2 Project Objectives

This project has quite a few objectives

2.1 Bluetooth Functionality Board-side

Wireless!

2.2 Bluetooth Functionality Android-side

We will be writing an Android app to recive data from the OBD reader. This app will recieve data over bluetooth. The android SDK has bluetooth funtionality built in, and so this app should be able to run on any android device with bluetooth capiblities.

The app will be able to display all of the basic messages from the diagnostic part of OBD. This includes the fault codes, monitor readyness, and whether the malfunction indicator light (MIL) is on or off. The OBD fault codes follow a pattern of N0000, a letter followed by 4 numbers. The app will contain the database of all of the standard codes and their meanings for easy lookup. The monitor readyness is indicating wheater the all of the monitors used by

the OBD system are ready to make a reading. They are reset when the OBD system is reset, and if the monitors are set to not ready, the car will fail any emmissions check performed by a DMV. The MIL is the light commonly known as the check engine light.

2.3 Cryptographically Securing Messages

Using generic over the counter crypto

2.4 Power Requirements

Needs to be able to be powered of car's power.