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Project Proposal

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Background and Overview

Recently, Cache County began requiring vehicles to pass emissions tests. There are many vehicle owners who don't particularly care about the environment, and would rather not have to pay for expensive emissions components and mechanic labor. So, in the spirit of Volkswagen, we propose to create a device to fool OBD-II based emissions testers.

Theory of Operation

This will be accomplished by temporarily dismounting the DLC (data link connector) from the cabinet of the vehicle and tucking it away in a concealed manner. Then, a false DLC, connected to the microcontroller, will be mounted in its place. This way, when the emissions technician connects his ELM 327 code reader to the DLC, he will actually be interfacing with the microcontroller instead of the PCM (powertrain control module), which will be set up to show passing emissions data.

Technical Details

CAN (controller area network) is the most common communication protocol over which OBD-II data is transmitted. There are a handful of others, but our setup will only support OBD-II over CAN. In order to accomplish this, we will be using a hardware CAN transceiver module. To power our setup, we will use a LM7805 voltage regulator to reduce the vehicle voltage (12.6V) to USB voltage (5V).

Conclusion

Our motives for the selection of this project are practicality (this is a very useful device), interest (Jonathan likes hacking and Aaron likes cars), and illegality (we wanted to live on the edge).