CST374

# Memo

**To:** Kevin Pintong

**From:** Zak Rowland

**Date:** April 13, 2020

**Re:** Initial Proposal

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I am having difficulty coming up with an idea for the project. The only thing I can think of currently is doing something with an Engine Control Unit (ECU) of a car. Aftermarket ECUs are very expensive and hiring someone that knows how to tune them just adds to the cost. I could come up with an open source FPGA based ECU that anyone can program and tune from home.

Creating an FPGA based ECU would require “reverse engineering” a stock ECU. This could be done by learning how to read data from the CAN bus, which is the protocol modern vehicles use to send and retrieve data to/from the various computers. Tuning the computer involves adjusting the air and fuel ratios, advancing or retarding the engine’s timing, monitoring various sensors, etc.

Every car operates differently, especially from manufacturer to manufacturer. This means it would be ideal to build some form of open database of the various configurations for every make and model that anyone could contribute to.