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README.md



Hardware Parts

- There are 2 options to create the dongle with:
 1. Arduino Nano + Arduino modules
 2. Custom Board (not fully finished as the PCB design is missing, electronics schema is done)

Both versions are described bellow:

Arduino Modules

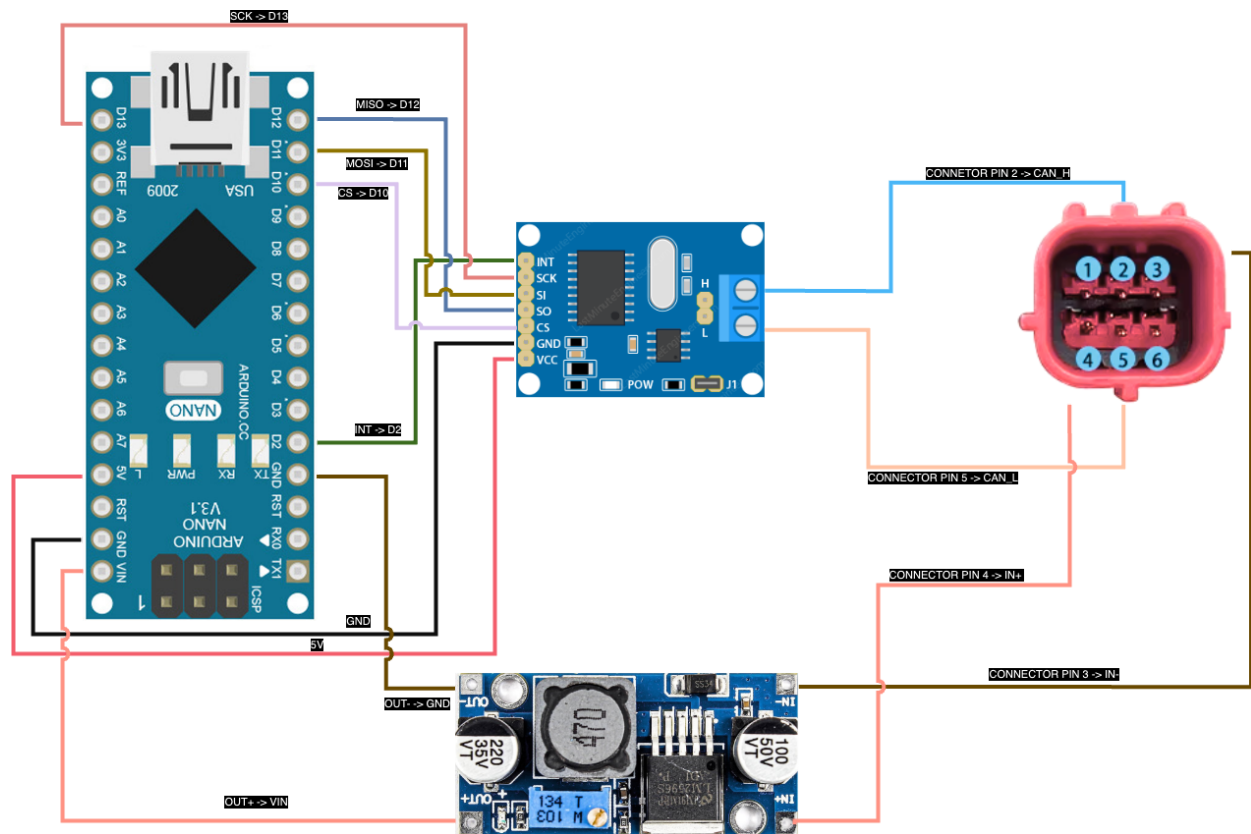
- Project was developed on Arduino Nano due to its small dimensions and the fact, that the project itself does not need a powerfull chip nor many of I/O pins.
- Used Arduino: [Link](#) (It's possible to use even cheaper clones of Arduino Nano, tested on: [Link](#))

Used Arduino modules

- [Step-down convertor \(12V -> 5V/3A\)](#) ← Converts battery voltage to voltage used by the components and controller
- [MCP2551 CAN Bus module](#) ← CAN-bus receiver + transceiver module used to intercept and manipulate the communication on the CAN bus itself via the OBD

connector

Connection Diagram



Custom Board

- The custom board schematic can be found here: [LINK](#)
- It is an [easyEDA](#) project.

What is working

- Schematic by itself is correct, tested on homemade PCB soldered by hand.

What is missing

- Missing is the final version of the PCB as I had troubles with ordering the elements on the board. Anyone who knows how to properly order them is welcome to do so under one rule: THE BOARD NEEDS TO BE SHARED WITH EVERYONE.

Electrical components

- [MCP2515](#) - The MCP2515 is a stand-alone CAN controller that interfaces with microcontrollers via SPI to enable communication over CAN networks, supporting data rates up to 1Mbps.

- [MCP2551](#) - The MCP2551 is a high-speed CAN transceiver that converts signals between a CAN controller and the CAN bus, supporting up to 1Mbps and providing EMI protection.
- [Atmega328P-AU](#) - The Atmega328P-AU is an 8-bit microcontroller with 32KB flash memory, used in embedded systems like Arduino, and supports up to 20MHz clock speeds with external crystals.
- [LM2575-5.0](#) - The LM2575-5.0 is a 5V fixed-output step-down voltage regulator capable of delivering up to 1A, with high efficiency and built-in protection features.
- [16MHz Crystal](#) - A 16MHz Crystal generates a precise clock signal for microcontrollers, ensuring stable timing for applications like communication and embedded systems.
- Resistor's, capacitor's and inductor's values are in the schema on EasyEda (link above)