

THROTTLE CONTROLLER

Weak 5v analog input. Provide 3.3v output 0.5 Amp.

If input is rising wait 500 msec before letting output rise

If input drops then output drops immediately.

Input of "0-5V in → 0-3.5V out"

Power

Using 12-24V 3A Step Down Voltage Regulator Module DC-DC Buck Converter taking 12V IN and step down to 8V OUT for Arduino Mini

Output

RC filter on D9, to get a smooth analog voltage from ~0 to ~3.3V.

D9 → 4.7k → SignalOut

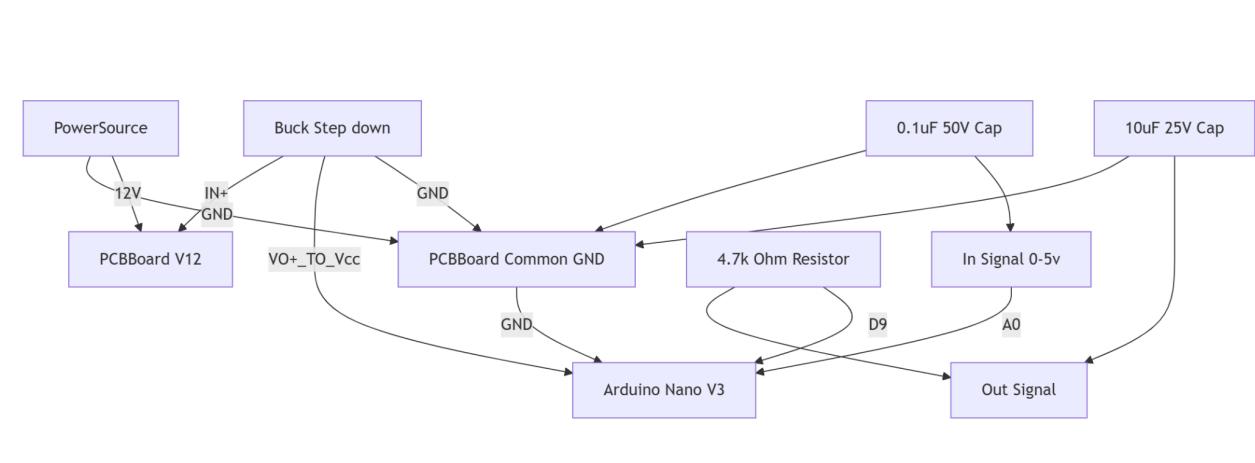
SignalOut → 10µF → GND

Input

Due to High Source Impedance of Arduino and weak input signal we are using Cap and read averaging. Theory - approach for high-Z sources (throw-away read + settle + averaging). See: `readA0HiZAvg()` in the program.

A0 — 0.1µF — GND

A0 Input signal (0-5v)



mermaid.live

```
graph TD
    %% Define Nodes
    PCBBoardV12[PCBBoard V12]
    PCBBoardGND[PCBBoard Common GND]
    Arduino[Arduino Nano V3]
    Cap1[10uF 25V Cap]
    Cap2[0.1uF 50V Cap]
    Buck[Buck Step down]
    Signal[Out Signal]
    Signal2[In Signal 0-5v]
    R1[4.7k Ohm Resistor]

    %% Define Connections
    PowerSource -- 12V --> PCBBoardV12
    PowerSource -- GND --> PCBBoardGND
    Buck -- GND --> PCBBoardGND
    Buck -- VO+_TO_Vcc --> Arduino
    Buck -- IN+ --> PCBBoardV12
    R1 -- D9 --> Arduino
    R1 --> Signal
    Cap1 --> Signal
    Cap1 --> PCBBoardGND
    Signal2 -- A0 --> Arduino
    Cap2 --> Signal2
    Cap2 --> PCBBoardGND
    PCBBoardGND -- GND --> Arduino
```