

Raspberry Pi Side

The diagram illustrates the Raspberry Pi side of the power supply system. It features a Raspberry Pi 3 board with its power pins connected to a DCDC Converter HRD05003. The converter's output is connected to the +5V pin of the Raspberry Pi. The ground pin of the Raspberry Pi is connected to the ground of the DCDC Converter. The I2C pins (SCL and SDA) are also shown connected to a terminal block. The diagram includes labels for the +5V and GND pins of the Raspberry Pi, and the SCL and SDA pins. The DCDC Converter is labeled "DCDC Converter HRD05003". The Raspberry Pi is labeled "Raspberry Pi 3".

The diagram illustrates the hardware connections for the Arduino side of the system. It includes the following components and connections:

- Arduino UNO:** The central microcontroller unit.
- PCA9306 Module:** A 1:1 I2C-to-I2C level shifter.
 - Vref1 and Vref2 are connected to +5V.
 - SCL1 and SCL2 are connected to the Arduino's SCL(A5).
 - SDA1 and SDA2 are connected to the Arduino's SDA(A4).
 - Power is supplied via +9V and +5V pins, with a 0.1uF capacitor on the +5V line and a 330uF capacitor on the +9V line.
- Servo Motors:** Two servos are connected to the Arduino's PWM pins.
 - Servo 1 is connected to OCR1A / 9.
 - Servo 2 is connected to OCR1B / 10.
 - Both servos are powered by +5V and grounded.
- LEDs and Driver:**
 - A **Blue LED** is connected to OCR0A / 6.
 - A **Status LED** is connected to OCR0B / 5.
 - Two **Red LEDs** are connected to OCR2A / 11 and OCR2B / 3.
 - Two **Green LEDs** are connected to OCR1B / 10 and OCR2B / 3.
 - A **TD62064** driver is used to interface the Arduino's digital output pins with the LEDs.
 - A **9W Full Color LED** module (containing Red, Green, and Blue LEDs) is connected to the driver's outputs. A 47Ω resistor is placed in series with the Red LED channel.
 - A **Status LED** is also connected to the driver's output, with a 1kΩ resistor in series.