# Test Cases:

This is a series of functionality tests designed to verify proper operation of marionettes outputs and inputs.

1. Verify supply voltages
2. GPIO
3. SPI
4. I2C
5. CAN
6. ADC
7. DAC

## Verify supply voltages

This test will be broken down in 2 parts:

1. Connect AC-DC supply and connect to marionette. Using a volt meter check the LDOs and SPS for proper conversion of 5.0V to 3.3V and 1.8V
2. Connect USB cable to marionette. Connect AC-DC supply and connect to marionette. Using a volt meter check the LDOs and SPS for proper conversion of 5.0V to 3.3V and 1.8V

## GPIO:

Using python construct Nose tests that will set GPIO as high or low and then preform the necessary Nose test to verify the register is in the expected state. Export the file as a .xlsx or .csv file.

We could connect a series of LEDs to the GPIOs to verify actual operation of the GPIOs

## SPI:

Connect MISO to MOSI, using Nose write a word out of MOSI and see if MISO reads back the written word. The results can be exported as a .xlsx or .csv file

## I2C:

Connect an LCD or other device to the I2C network and verify the LCD screen provides the expected output.. At this time I do not know how to automate this test with python/nose

## CAN:

Connect USB CAN transceiver to CAN network write out a word from USB CAN to CAN and verify correct word was sent. Write word out from CAN to USB CAN and verify correct word was sent. At this time I do not know how to automate this test with python/nose

## ADC:

Connect ADC to various voltages. We can use Nose tests to automate to verify measured voltage matches connected voltage. This test could be coupled with DAC by connecting DAC to ADC, Sweeping DAC voltages and verifying them with onboard ADC. This test can easily be automated using NOSE

## DAC:

Connect DAC to Oscilloscope and output various voltages. This test can be grouped with the ADC test. See ADC test for description.