

RPi Cable Tester

status active

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Table of Contents

- [Table of Contents](#)
- [About](#)
- [Getting Started](#)
 - [AutoStart on Boot](#)
- [Circuit](#)
 - [Raspberry Pi Pinout](#)
 - [Pins Used](#)
- [Logic Details](#)
- [Usage](#)
- [Demo](#)
- [Built Using](#)
- [Authors](#)

About

This repo contain files and detailed instructions on running the RPi Cable Tester Program.

Getting Started

- This program is tested on Raspbery Pi 3B.
- Copy Firmware folder to the Destkop of your Raspberry Pi.

AutoStart on Boot

Open the terminal on your Raspberry Pi and execute the following command

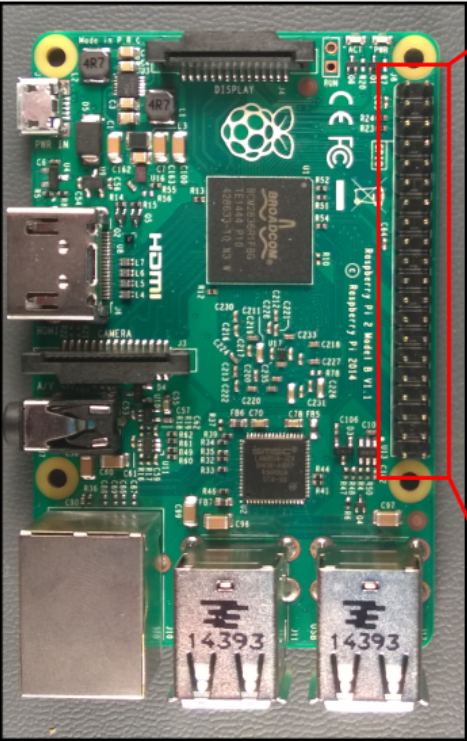
- `sudo nano /etc/rc.local`

Then put the following line before `exit 0`

- `(sleep 5; sh /home/pi/Desktop/Firmware/starter.sh)&`
- Press CTRL+O and CTRL+X to save and exit.

Circuit

Raspberry Pi Pinout



Alternate Function					Alternate Function
	3.3V PWR	1		2	5V PWR
I2C1 SDA	GPIO 2	3		4	5V PWR
I2C1 SCL	GPIO 3	5		6	GND
	GPIO 4	7		8	UART0 TX
	GND	9		10	UART0 RX
	GPIO 17	11		12	GPIO 18
	GPIO 27	13		14	GND
	GPIO 22	15		16	GPIO 23
	3.3V PWR	17		18	GPIO 24
SPI0 MOSI	GPIO 10	19		20	GND
SPI0 MISO	GPIO 9	21		22	GPIO 25
SPI0 SCLK	GPIO 11	23		24	GPIO 8
	GND	25		26	GPIO 7
	Reserved	27		28	Reserved
	GPIO 5	29		30	GND
	GPIO 6	31		32	GPIO 12
	GPIO 13	33		34	GND
SPI1 MISO	GPIO 19	35		36	GPIO 16
	GPIO 26	37		38	GPIO 20
	GND	39		40	GPIO 21

Pins Used

Green LED

Raspberry Pi Pin	LED Pin
GPIO 12	LED Positive
GND	LED Negative

Y-Cable (Connector 1)

Raspberry Pi Pin	Connector
GPIO 4	Connector 1 Pin 1
GPIO 17	Connector 1 Pin 2
GPIO 27	Connector 1 Pin 3

Raspberry Pi Pin	Connector
GPIO 22	Connector 1 Pin 4
GPIO 10	Connector 1 Pin 5
GPIO 9	Connector 1 Pin 6

Y-Cable (Connector 2)

Raspberry Pi Pin	Connector
GPIO 11	Connector 2 Pin 1
GPIO 5	Connector 2 Pin 2
GPIO 6	Connector 2 Pin 3
GPIO 13	Connector 2 Pin 4
GPIO 19	Connector 2 Pin 5
GPIO 26	Connector 2 Pin 6

Y-Cable (Connector 3)

Raspberry Pi Pin	Connector
GPIO 18	Connector 3 Pin 1
GPIO 23	Connector 3 Pin 2
GPIO 24	Connector 3 Pin 3
GPIO 25	Connector 3 Pin 4
GPIO 8	Connector 3 Pin 5
GPIO 7	Connector 3 Pin 6

Logic Details

- The program logic for testing cable is simple. Connector 1 is connected to the 6 GPIO pins of Raspberry Pi acting as OUTPUT pins. Connector 2 and Connector 3 are connected to other set of GPIO pins of Raspberry Pi acting as INPUT Pins(with RPi internal PULL-UP Resistors).
- Connector 1 pins send signal(LOW) to Connector 2 and Connector 3 INPUT GPIOs and if all the GPIOs of Connector 2 and 3 becomes LOW, the GREEN LED lights up.

Raspberry Pi

Usage

- Copy Firmware folder of this Repo to the Desktop of Raspberry Pi and run the program using the following command

```
python3 /home/pi/Desktop/Firmware.py
```

- Or follow [AutoStart on Boot](#) section of this README to make the program run automatically on Raspberry Pi boot.
- In case of auto boot, a log file is created in logs directory inside the Firmware folder.

Demo

A demo video is present in the root of this repository which tries to mimic a Y-Cable connections and on any broken connection the Green LED turns off. If all connections are correct then the Green LED turns on.

Built Using

- [Python](#) - For programming the Watchman Service

Authors

- [@Nauman3S](#) - Development