

Connecting GTR V1.0 with Pi 3B+/4 by 3 wires, (2 wires which are serial connection and 1 wire is ground [GND]).

With 3 wires for serial connections made you no longer need the use of USB cable. *1


- Raspberry Pi 3B+/4 and GTR V1.0 both use 3.3 V logic.
- The idea is to cross connect (see **Cross Connect Diagram** below) the TX and RX from the Raspberry Pi to the ARM Processor's TX and RX on the GTR V1.0 board. Cross connect means TX goes to RX; RX goes to TX.

Therefore, do the following:

- Connect **TXD0** (Raspberry Pi's TX) from Raspberry Pi 3B+/4 connector **TO** the ARM USART1_RX (**RX1**) from GTR V1.0 board's Raspberry Pi connector.
- Connect **RXD0** (Raspberry Pi's RX) from Raspberry Pi 3B+/4 connector **TO** the ARM USART1_TX (**TX1**) from GTR V1.0 board's Raspberry Pi connector.
- Connect GND from Raspberry Pi 3B+/4 Connector **TO** **GND** from GTR V1.0 Raspberry Pi connector.

DO NOT connect the Raspberry Pi 5V and 3.3V PINS to the GTR 1.0 board. Connecting the 5V and 3.3V PINS would bypass the fuses on the Raspberry Pi board and could cause issues to BOTH the Raspberry Pi board and the GTR V1.0 board. In fact, I recommend powering the Raspberry Pi from an independent and separate 5V power supply but connect the GND on the Raspberry Pi power supply to the GND on the GTR V1.0 board.

Pi 3B+/4 @ GPIO connector: PINS used: TXD0, RXD0 and GND (8-10-6):



Pin 1

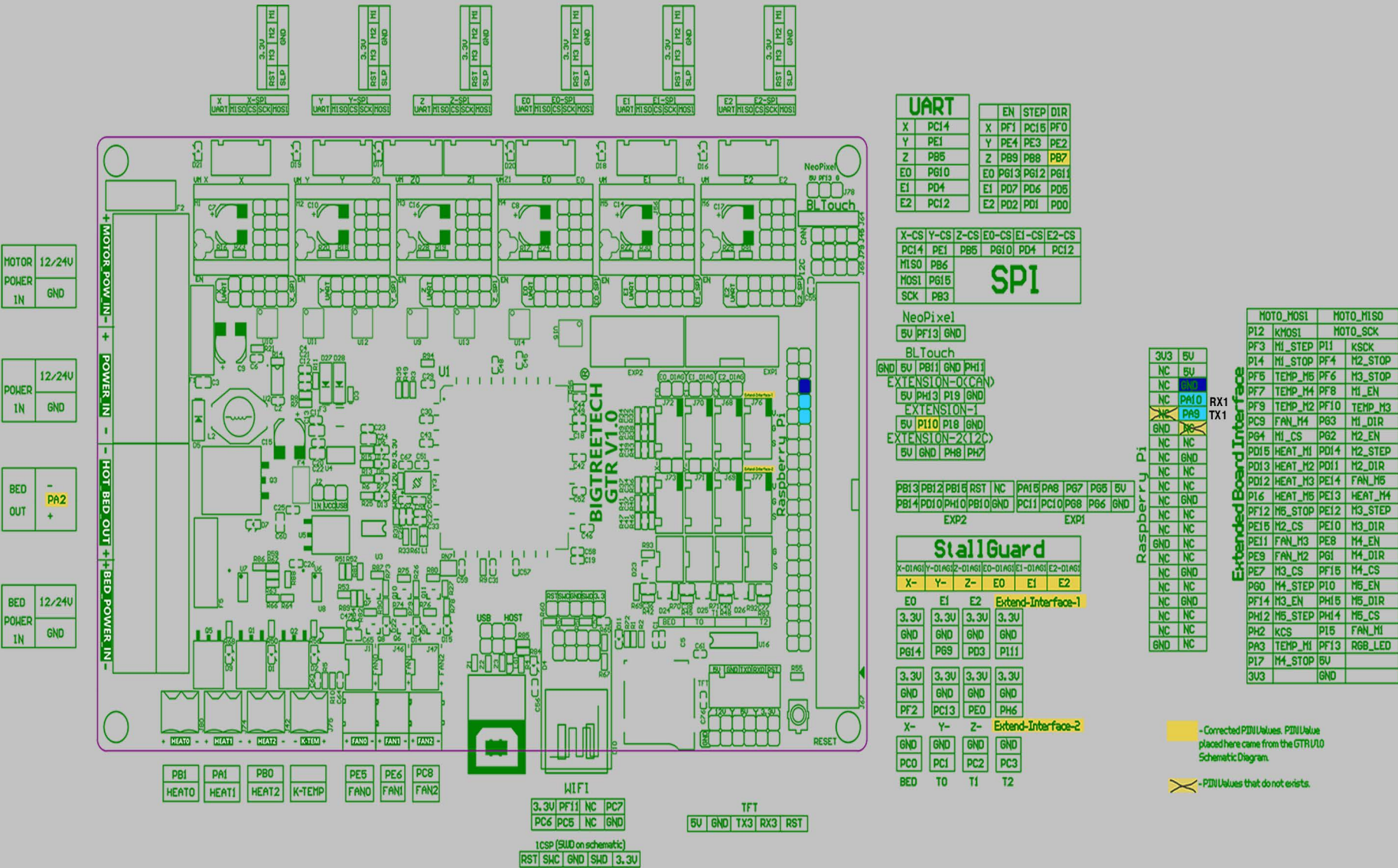
Pin 2

Pin 39

Pin 40

		Pin no.			
DC Power	3.3V	1	2	5V	DC Power
SDA1, I ² C	GPIO 2	3	4	5V	DC Power
SCL1, I ² C	GPIO 3	5	6	GND	
GPIO_GCLK	GPIO 4	7	8	GPIO 14	TXD0
	GND	9	10	GPIO 15	RXD0
GPIO_GEN0	GPIO 17	11	12	GPIO 18	GPIO_GEN1
GPIO_GEN2	GPIO 27	13	14	GND	
GPIO_GEN3	GPIO 22	15	16	GPIO 23	GPIO_GEN4
DC Power	3.3V	17	18	GPIO 24	GPIO_GEN5
SPI_MOSI	GPIO 10	19	20	GND	
SPI_MISO	GPIO 9	21	22	GPIO 25	GPIO_GEN6
SPI_CLK	GPIO 11	23	24	GPIO 8	SPI_CE0_N
	GND	25	26	GPIO 7	SPI_CE1_N
I ² C ID EEPROM	DNC	27	28	DNC	I ² C ID EEPROM
	GPIO 5	29	30	GND	
	GPIO 6	31	32	GPIO 12	
	GPIO 13	33	34	GND	
	GPIO 19	35	36	GPIO 16	
	GPIO 26	37	38	GPIO 20	
	GND	39	40	GPIO 21	

GTR V1.0 @ Raspberry pi connector: TX1, RX1 and GND



		Pin no.			
DC Power	3.3V	1	2	5V	DC Power
SDA1, I ² C	GPIO 2	3	4	5V	DC Power
SCL1, I ² C	GPIO 3	5	6	GND	
GPIO_GCLK	GPIO 4	7	8	GPIO 14	TXD0
	GND	9	10	GPIO 15	RXD0
GPIO_GEN0	GPIO 17	11	12	GPIO 18	GPIO_GEN1
GPIO_GEN2	GPIO 27	13	14	GND	
GPIO_GEN3	GPIO 22	15	16	GPIO 23	GPIO_GEN4
DC Power	3.3V	17	18	GPIO 24	GPIO_GEN5
SPI_MOSI	GPIO 10	19	20	GND	
SPI_MISO	GPIO 9	21	22	GPIO 25	GPIO_GEN6
SPI_CLK	GPIO 11	23	24	GPIO 8	SPI_CE0_N
	GND	25	26	GPIO 7	SPI_CE1_N
I ² C ID EEPROM	DNC	27	28	DNC	I ² C ID EEPROM
	GPIO 5	29	30	GND	
	GPIO 13	33	34	GND	
	GPIO 19	35	36	GPIO 16	
	GPIO 26	37	38	GPIO 20	
	GND	39	40	GPIO 21	

Legend:

- Yellow box: - Corrected PIN Values. PIN Value placed here came from the GTR U10 Schematic Diagram.
- Pink box: - PIN Values that do not exists.

You also have to change some settings in the Raspberry pi 3B+/4 operating system.

Raspberry Pi 3B+/4 Changes that need to be made:

Login to your Raspberry Pi.

Swapping ports used by GPIO and Bluetooth

The first thing to change in the serial connection is to swap the ports used by the GPIO pins and the internal Bluetooth chip. We need to add a line in the boot config file on the boot partition.

Log in to the Pi3 with SSH on the IP address used.

Type in `sudo nano /boot/config.txt`

Move the cursor to the end of the file by cursor and add:

`dtoverlay=pi3-miniuart-bt`

save the file and exit the editor by control+O, hit enter then hit control+X

Disabling the serial console

Moving to another config file, where part of the code must be deleted to disable serial console.

Type in `sudo nano /boot/cmdline.txt`

Look for following string (text) and delete it

`console=serial0,115200`

save the file and exit the editor by control+O and control+X

Rebooting RPi

For all changes to take effect, please reboot your Raspberry Pi 3

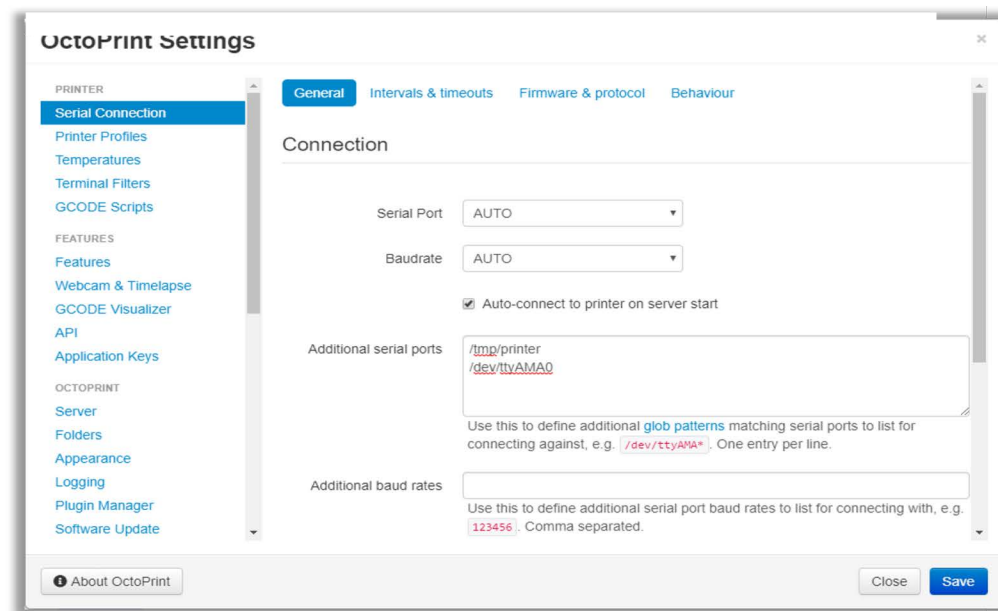
Type in `Sudo reboot`

Adding the serial port in Octoprint

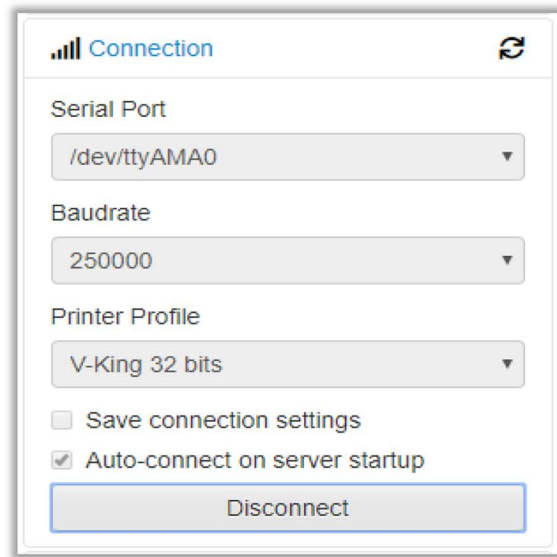
Last part of the configuration is in the Octoprint web interface. Open your browser and type either "octoprint.local" or the IP address of the Pi 3. You might be greeted with the welcome wizard, please go through it first.

As soon as you arrive at the home screen, open "Settings" (top right), head to "Serial Connection", then "Additional serial ports" and insert following:

`/dev/ttyAMA0`



Save the change and reboot OctoPrint. After reboot, select the new port and connect to your printer. Making connection might take a few seconds longer then with USB.



***1 This information was taken from BIGTREE TECH SKRV1.3 Guide 2019 - 6 .PDF and adjusted for the GTR V1.0 Board.**

Marlin 2.0.x Setup for Communicating with the Raspberry Pi via the Raspberry Pi Connector

- GTR Board has 4 numbers for SERIAL_PORT/SERIAL_PORT_2: -1 for USB port; 1 for serial connection on Raspberry Pi Interface; 3 for TFT port; 6 for WIFI port.
- The SERIAL_PORT in Marlin is the one you want to use to get all errors reported. The SERIAL_PORT_2 is the secondary port. The secondary port will only receive errors on the connections the secondary port sends out on.
- In Configuration.h set **SERIAL_PORT** to **1** and **SERIAL_PORT_2** to **3** using these setting Marlin will use the TX1/RX1 on the Raspberry Pi Interface to communicate with Octoprint. The TFT (3) screen will receive secondary information.

```

96
97 // @section machine
98
99 /**
100  * Select the serial port on the board to use for communication with the host.
101  * This allows the connection of wireless adapters (for instance) to non-default port pins.
102  * Serial port -1 is the USB emulated serial port, if available.
103  * Note: The first serial port (-1 or 0) will always be used by the Arduino bootloader.
104  * :[-1, 0, 1, 2, 3, 4, 5, 6, 7]
105  */
106 //
107 #define SERIAL_PORT 1 //GADGETANGEL -1: USB; 3: TFT; 6: WIFI; 1: Raspberry Pi connector //was -1
108
109 /**
110  * Select a secondary serial port on the board to use for communication with the host.
111  * :[-1, 0, 1, 2, 3, 4, 5, 6, 7]
112  */
113 #define SERIAL_PORT_2 3 //GADGETANGEL was uncommented out and the value was -1
114
115 /**
116  * This setting determines the communication speed of the printer.
117  *
118  * 250000 works in most cases, but you might try a lower speed if
119  * you commonly experience drop-outs during host printing.
120  * You may try up to 1000000 to speed up SD file transfer.
121  *
122  * :[2400, 9600, 19200, 38400, 57600, 115200, 250000, 500000, 1000000]
123  */
124 #define BAUDRATE 115200
125
126 // Enable the Bluetooth serial interface on AT90USB devices
127 // #define BLUETOOTH
128
129 // Choose the name from boards.h that matches your setup
130 #ifndef MOTHERBOARD
131   #define MOTHERBOARD BOARD_BTT_GTR_V1_0 //GADGETANGEL was BOARD_MELZI_CREALITY
132 #endif
133
134 // Name displayed in the LCD "Ready" message and Info menu
135 #define CUSTOM_MACHINE_NAME "Ender-3"
136
137 // Printer's unique ID, used by some programs to differentiate between machines.
138 // Choose your own or use a service like http://www.uuidgenerator.net/version4
  
```