

20140901 - Beagle Bone Black Serial Port Setup

Last week I did a demo of the BBB talking to an Arduino Uno for the Hero Jr Robot conversion. There were a couple of things to take away from that demo. 1st I setup the Arduino to read the keypad of the Hero Jr. The keypad is the original pad, and turns out it just a 4x4 matrix style keypad. The RESET button still doesn't work, but will. The take away from this was that keypad matrix seem to fairly universal 4x3 or 4x4 and in the case of the Hero Jr - they just rearranged the keys to make it look like it might be something different.

There is quite a bit of information in this document about the keypad matrix.

I also have the Photoresistor working on the Arduino.

The most important take away thou is how to setup one of the serial ports on the BBB - remember BBB has four UARTs.

Most of the information on how to enable them seems wrong is confusing, I finally came across this and it will enable the serial ports for python.

<https://github.com/alexanderhiam/PyBBIO/wiki/Installing-PyBBIO>

Depending on which distro is installed on your device will depend on how you enable and install the serial ports.

Installing PyBBIO will also enable some of the other features of the board.

Very good library, very easy to use once it's installed, very easy to install using the above site. Loads of information can be found here:

<https://github.com/alexanderhiam/PyBBIO/wiki>

For those interested here is a picture of the I/O pins:

P9				P8			
GND	1		2	GND	1		2
3.3V	3		4	3.3V	3		4
5V Raw	5		6	5V Raw	5		6
5V	7		8	5V	7		8
	9		10		9		10
Serial4 RX/GPIO0_30	11		12	GPIO1_28	11		12
Serial4 TX/GPIO0_31	13		14	PWM1A/GPIO1_18	13		14
GPIO1_16	15		16	PWM1B/GPIO1_19	15		16
GPIO0_5	17		18	GPIO0_4	17		18
GPIO0_13	19		20	GPIO0_12	19		20
Serial2 TX/GPIO0_3	21		22	Serial2 RX/GPIO0_2	21		22
GPIO1_17	23		24	Serial1 TX/GPIO0_15	23		24
GPIO3_21	25		26	Serial1 RX/GPIO0_14	25		26
GPIO3_19	27		28	GPIO3_17	27		28
GPIO3_15	29		30	GPIO3_16	29		30
GPIO3_14	31		32	VDD_ADC	31		32
AIN4	33		34	GND_ADC	33		34
AIN6	35		36	AIN5	35		36
AIN2	37		38	AIN3	37		38
AIN0	39		40	AIN1	39		40
GPIO0_20	41		42	GPIO0_7	41		42
GND	43		44	GND	43		44
GND	45		46	GND	45		46

This image shows all the pins currently supported by PyBBIO, color coded by type, and each with the same name as its pin constant.

The 5V Raw pins are connected directly to the DC barrel jack, so they can be used when driving higher current devices like motors or relays.