
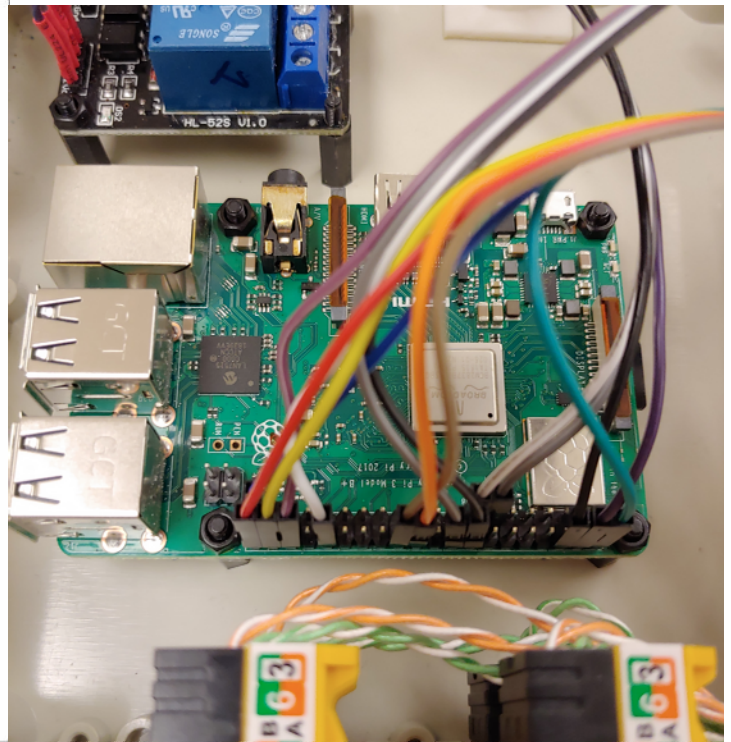


Raspberry Pi B+ J8 Header

Pin#	NAME		NAME	Pin#
01	3.3v DC Power		DC Power 5v	02
03	GPIO02 (SDA1 , I2C)		DC Power 5v	04
05	GPIO03 (SCL1 , I2C)		Ground	06
07	GPIO04 (GPIO_GCLK)		(TXD0) GPIO14	08
09	Ground		(RXD0) GPIO15	10
11	GPIO17 (GPIO_GEN0)		(GPIO_GEN1) GPIO18	12
13	GPIO27 (GPIO_GEN2)		Ground	14
15	GPIO22 (GPIO_GEN3)		(GPIO_GEN4) GPIO23	16
17	3.3v DC Power		(GPIO_GEN5) GPIO24	18
19	GPIO10 (SPI_MOSI)		Ground	20
21	GPIO09 (SPI_MISO)		(GPIO_GEN6) GPIO25	22
23	GPIO11 (SPI_CLK)		(SPI_CE0_N) GPIO08	24
25	Ground		(SPI_CE1_N) GPIO07	26
27	ID_SD (I2C ID EEPROM)		(I2C ID EEPROM) ID_SC	28
29	GPIO05		Ground	30
31	GPIO06		GPIO12	32
33	GPIO13		Ground	34
35	GPIO19		GPIO16	36
37	GPIO26		GPIO20	38
39	Ground		GPIO21	40

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<http://www.element14.com>



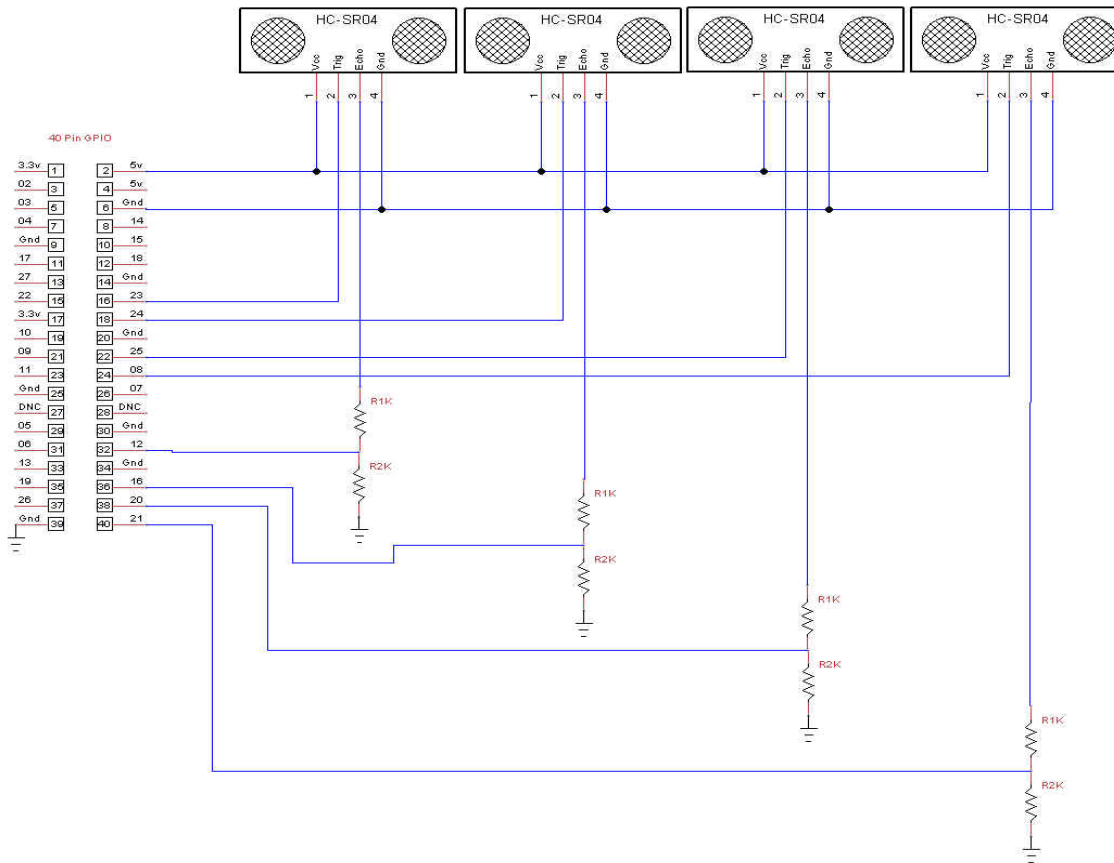
Location	Module	GPIO Pin #	Wire Color (Rainbow cable)
Toilet #1 (E107) Ceiling	Ultrasonic Sensor #1	#16(Trig), #32(Echo)	Black, White
Toilet #1 (E107) Wall	Ultrasonic Sensor #2	#18(Trig), #36(Echo)	Grey, Purple
Toilet #2 (E108) Ceiling	Ultrasonic Sensor #3	#22(Trig), #38(Echo)	Orange, Yellow
Toilet #2 (E108) Wall	Ultrasonic Sensor #4	#24(Trig), #40(Echo)	Brown, Red
		#2(Common VCC for all Ultrasonic Sensors)	Green (In each keystone jack, used Pin #3 (white-green) as common VCC(+ve))
		#39(Common Ground for all Ultrasonic Sensors)	Blue (In each keystone jack, used Pin #6 (green) as common Ground (-ve))
Toilet #1 (E107)	Relay	#13	Grey
Toilet #2 (E108)	Relay	#15	White
	Relay	#4(VCC)	Purple
	Relay	#6(Gnd)	Black

Multiple Ultrasonic Sensors to Raspberry Pi

To connect 4 Ultrasonic HC-SR04 Distance sensors is straight forward , you need to connect 5V and ground to each sensor

Then you need to connect 4 gpio pins one to each sensor trigger pin, and finally you need to connect each of the echo pins to a 4 gpio pins using a potential divider circuit. (R1K is 1K Ω resistor, R2K is 2K Ω resistor)

Some thing like this



RJ45 Jack Pin Assignment		
Pin #	Colour	Description
1	White-Orange	Echo
2	Orange	Trigger
3	White-Green	VCC (+ve)
6	Green	Ground (-ve)

