

EMBEDDED LEARNER BOARD

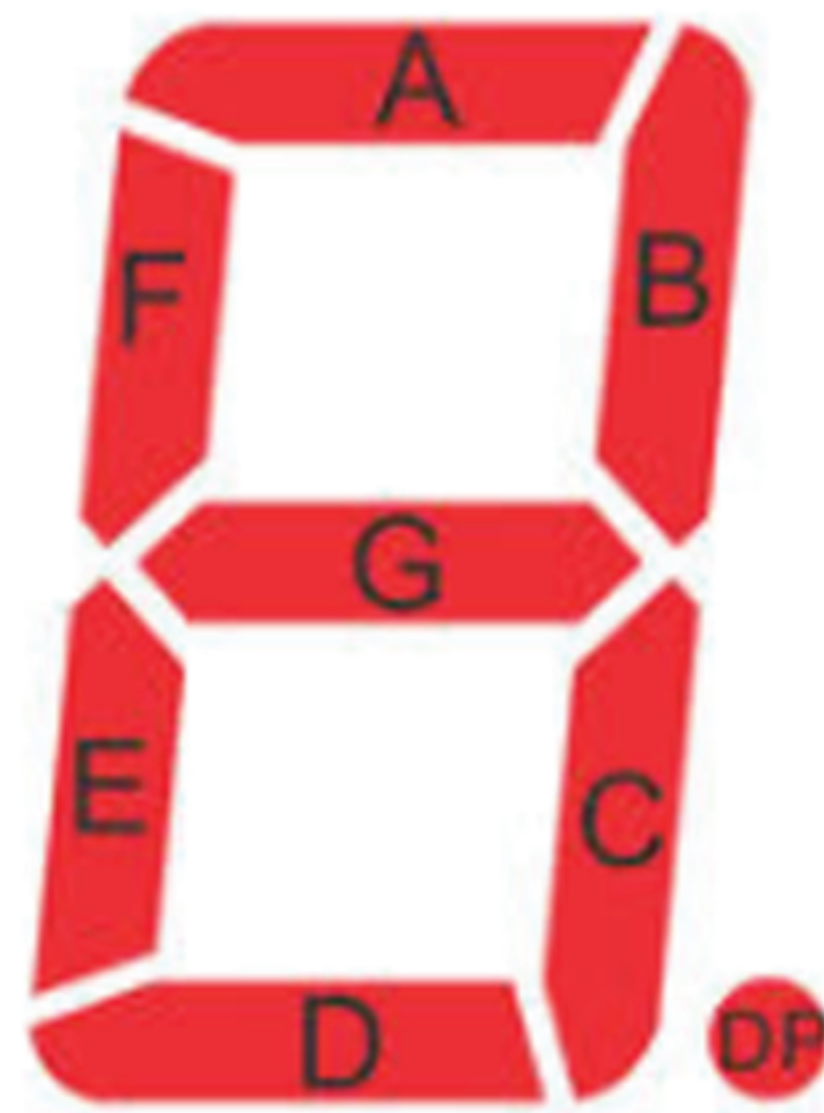
THANK YOU FOR SHOPPING WITH US

Your support is highly encouraging for our Innovation Lab team

★ We would love to hear your feedback ★

LET'S GET STARTED

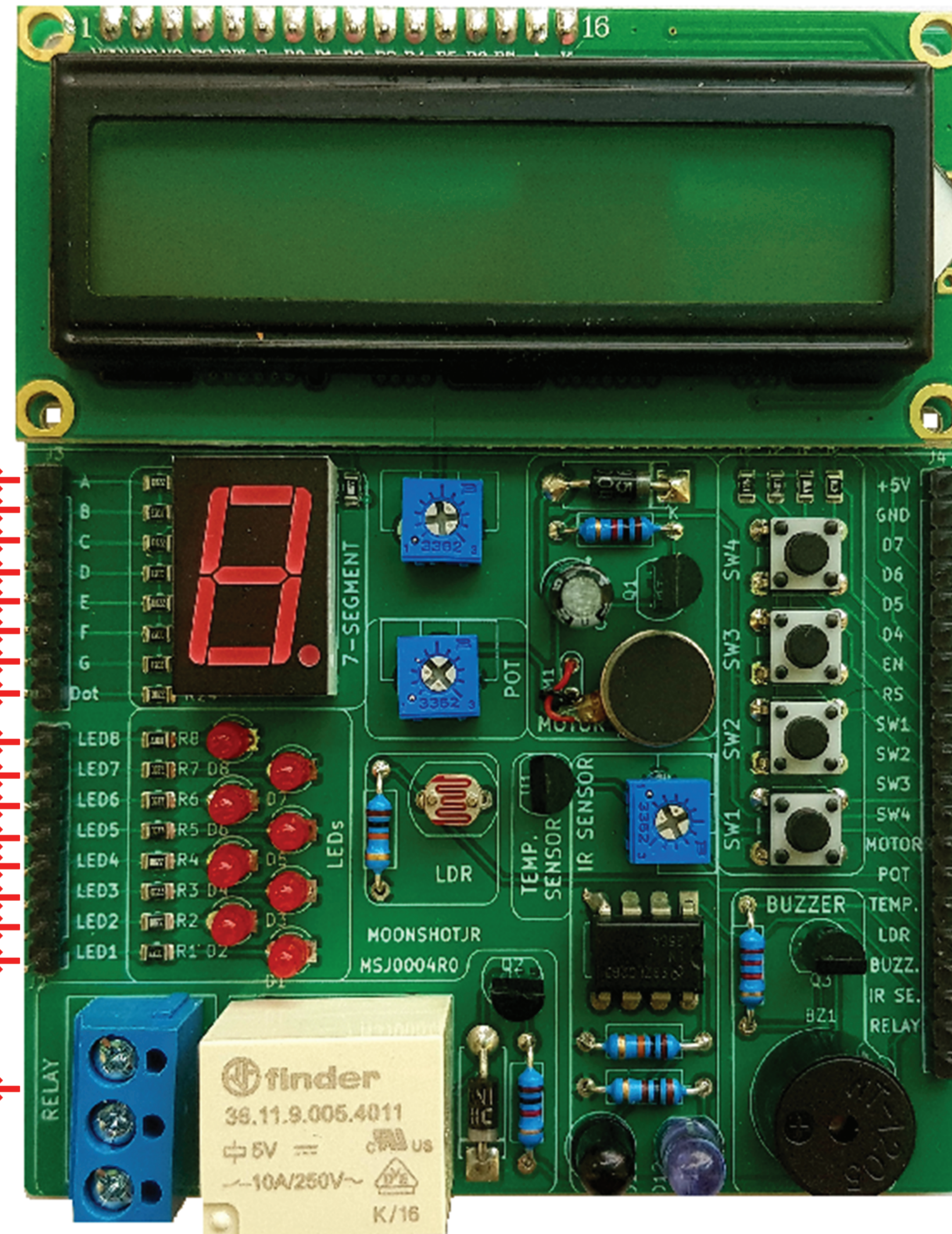
- 1) Use jumper wires to connect the Embedded Learner Board to Arduino or Raspberry Pi.
- 2) For using the pre-provided arduino programs, refer to the "connections PDF" for connections.
- 3) Once connections are done, verify them.
- 4) Connect the Embedded Learner Board to the 5V power supply and upload or run the code.



A
B
C
D
E
F
G
DP

Controls LED D8
Controls LED D7
Controls LED D6
Controls LED D5
Controls LED D4
Controls LED D3
Controls LED D2
Controls LED D1

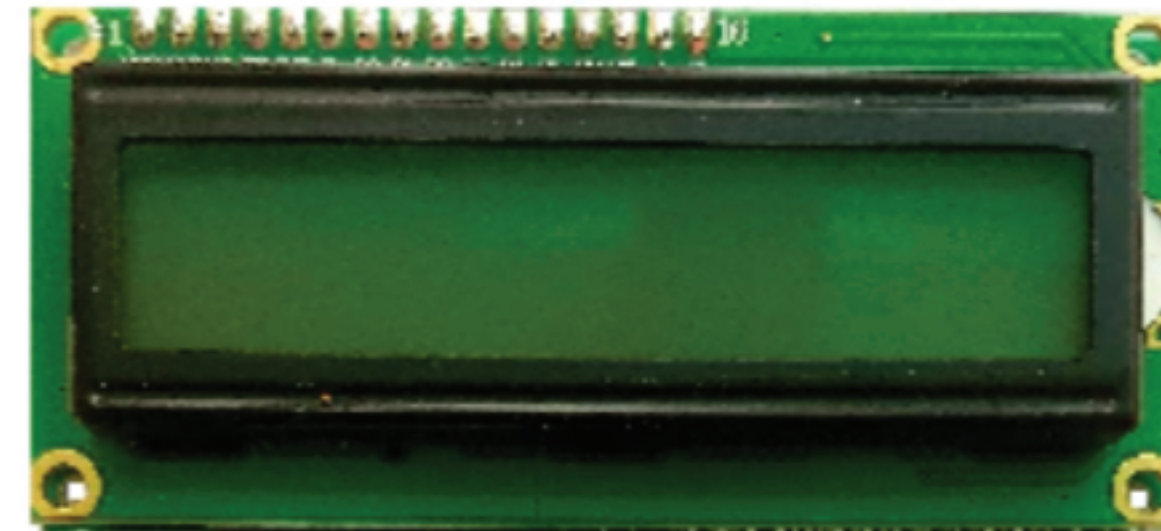
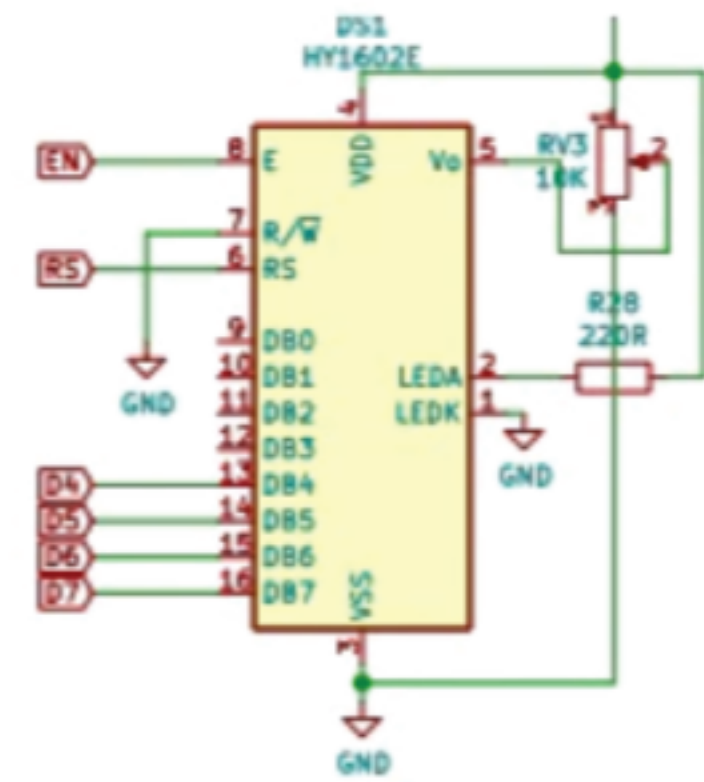
Relay Module



Input Voltage (+5V DC)
Ground
Pins used to send data to the LCD.
Must be held high to perform Read/Write Operation
Selects command register when low, & data register when high
Switch SW1 Output
Switch SW2 Output
Switch SW3 Output
Switch SW4 Output
Controls Vibration Motor (MOTOR)
Analog Value of potentiometer P2 (POT)
Temperature Sensor Output
Light Sensor (LDR - Light Dependent Resistor)
Controls Buzzer BZ1
IR Sensor Output
Control Relay
Unused

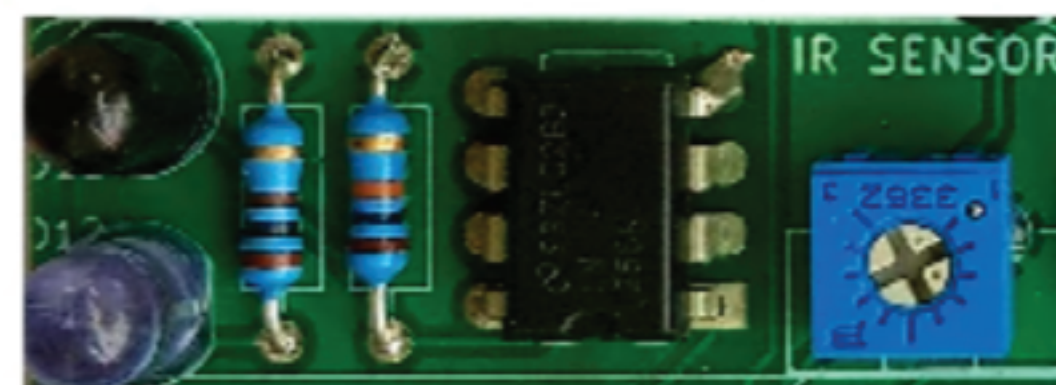
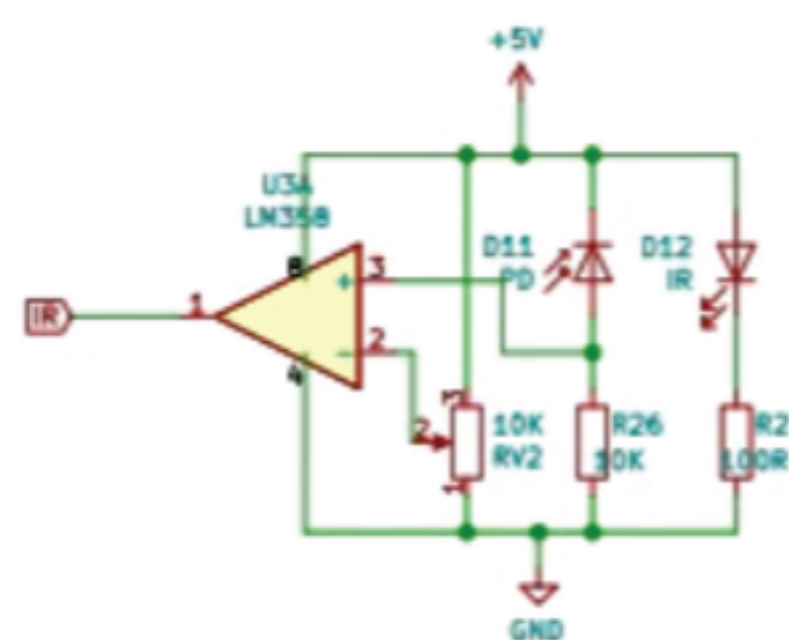
EMBEDDED LEARNER BOARD

Alpha-numeric display (Output)



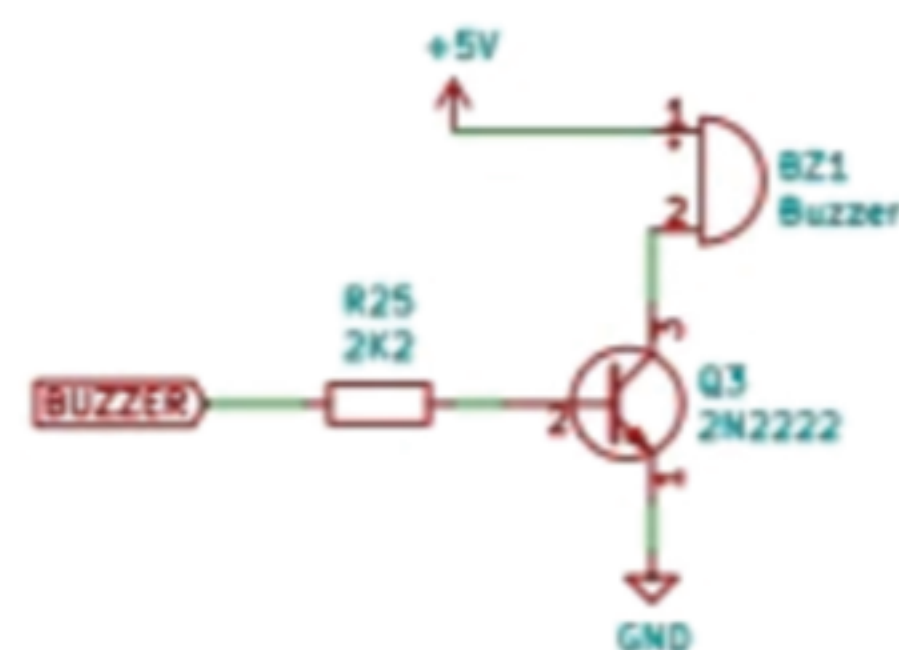
This is our key component. The Alphanumeric Display works on SPI Bus. Moreover, codes for Arduino and Raspberry Pi will be provided in the free session.

IR sensor (Input)



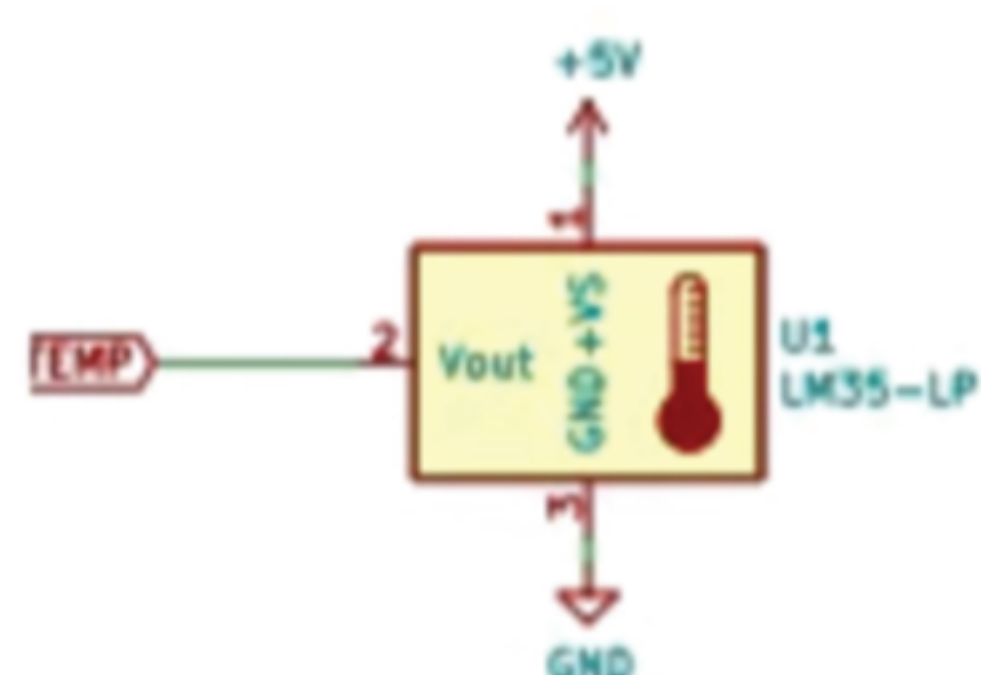
The IR receiver detects the reflected IR rays and helps in obstacle detection. IR sensors can also differentiate between black and white colour, as black colour absorbs all the IR rays and does not reflect any. It's a digital sensor. When the sensor is placed in front of any object, it outputs '0' for 'no object' or 'black colour objects' and '1' for 'objects'.

Buzzer (Output)



Can be used to produce 'beep' sound when buzz pin set to 'HIGH'.

Temperature Sensor (Input)

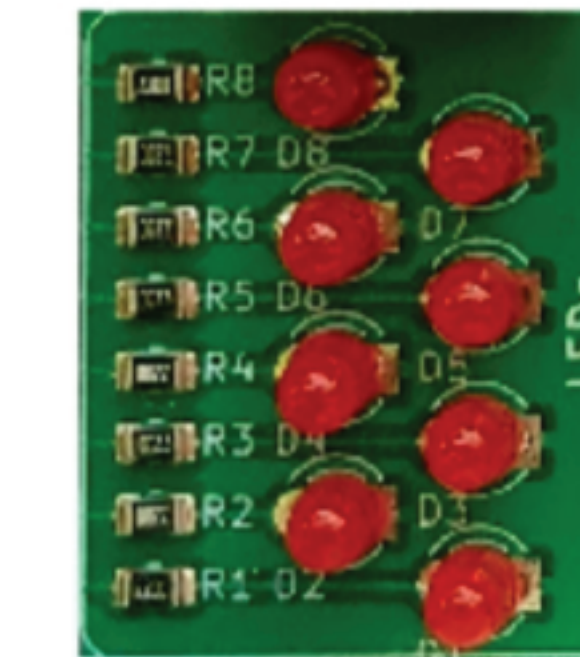
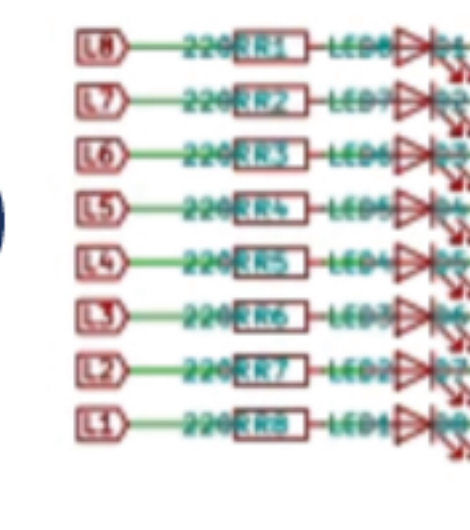


The sensor used is LM35.
 $\text{Temp (degree celsius)} = (\text{Sensor ADC value} * 4.88) / 10$

Switches (Input)

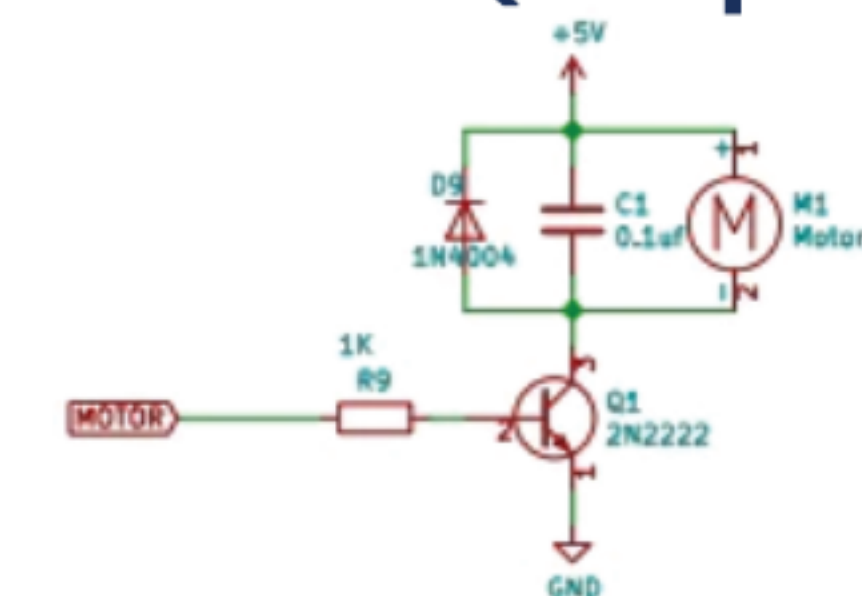
The board is equipped with 4 tap switches. Each returns '1' to the microcontroller/processor when pressed and '0' when not pressed.

8 x LEDs (Output)



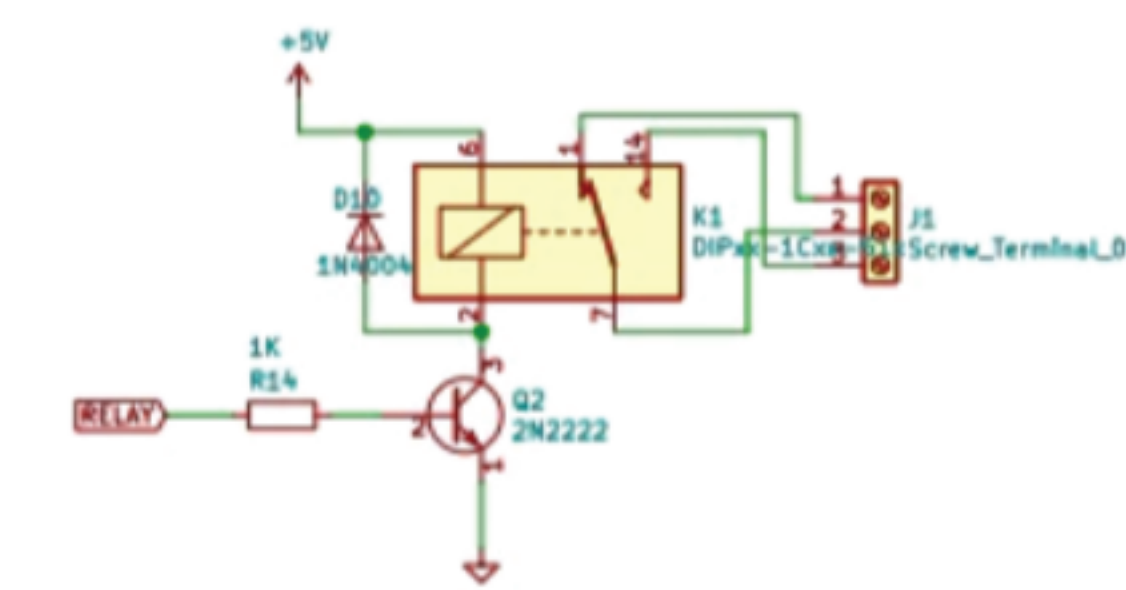
The LEDs can be connected to the GPIO Bus of the Arduino or Raspberry Pi. It is fun to start learning with LEDs.

Motor (Output)

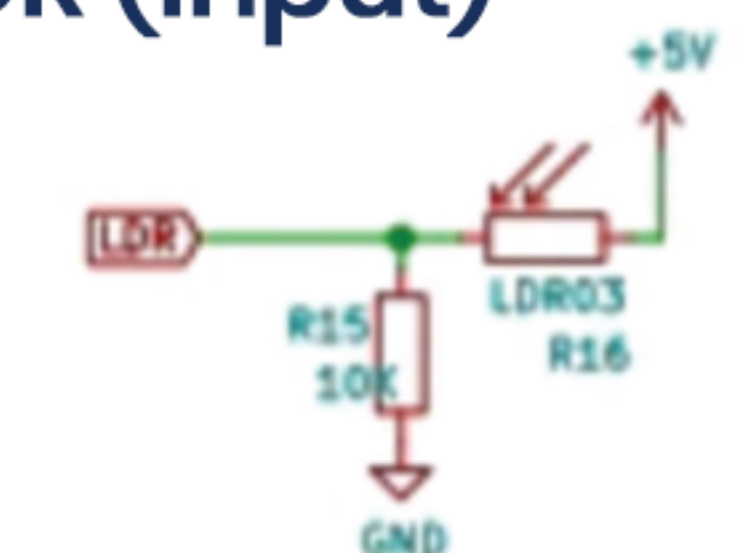


The Transistor Circuit drives an on-board vibration component. Many circuits work on a similar principle. The motor vibrates when the 'motor' pin is set to 'HIGH'.

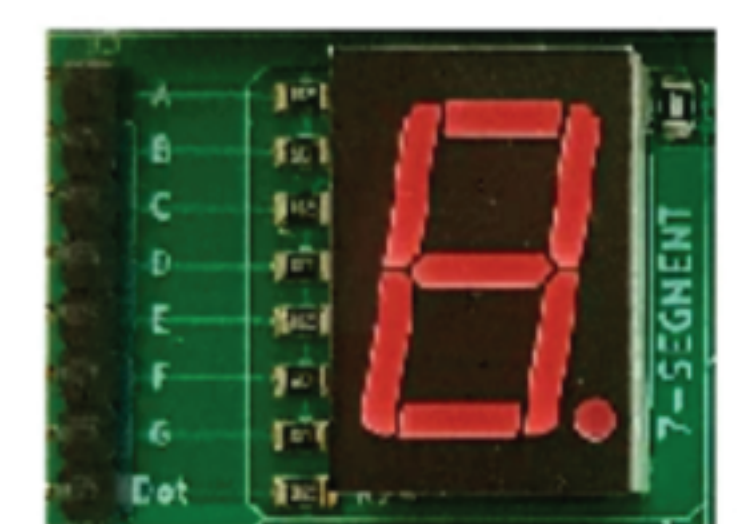
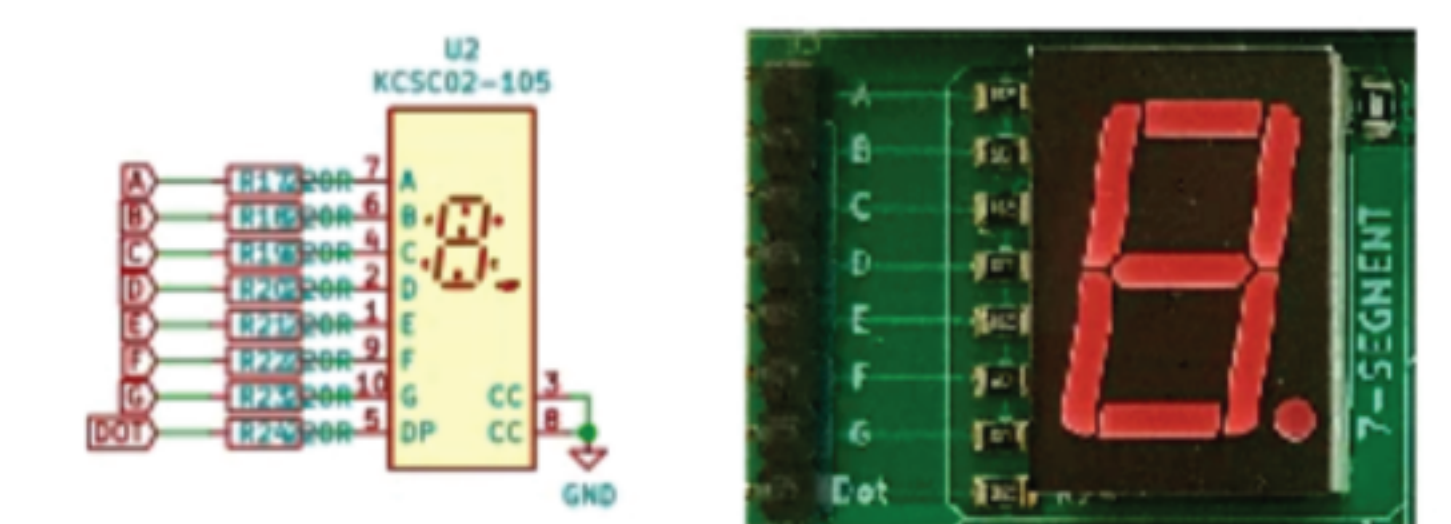
Relay (Output)



LDR (Input)



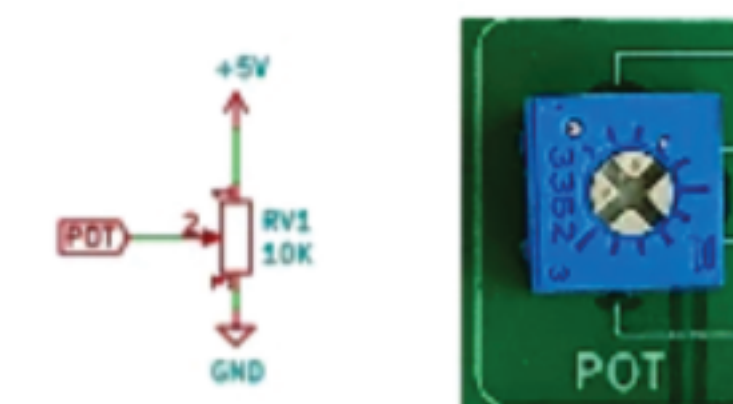
7 segment display (Output)



The 7-segment can be connected to the GPIO Bus of the Arduino or Raspberry Pi using an 8 pin male header. It is fun to start learning with the 7-segment.

The Transistor Circuit drives the relay in the same as the one for the Vibration Motor, but it serves a different purpose. It shifts from normally open state of the relay to close state when the 'Relay' pin is set to 'HIGH'.

Potentiometer



A potentiometer is a manually adjustable, variable resistor with three terminals. Two terminals are connected to a resistive element, the third terminal is connected to an adjustable wiper. The position of the wiper determines the output voltage. A potentiometer is also commonly known as a potmeter or pot. The most common form of potmeter is the single turn rotary potmeter. This type of pot is often used in audio volume control (logarithmic taper) as well as many other applications.

NOTE: While interfacing the Embedded Learners Board's LCD Display with Raspberry Pi, one must provide external +5V to Embedded Learners Board, as Raspberry Pi can supply only +3.3V output.

DISCLAIMER: **The resource is intended for developers. You are solely responsible for (1) designing, validating and testing your product, and (2) any damage/loss incurred.