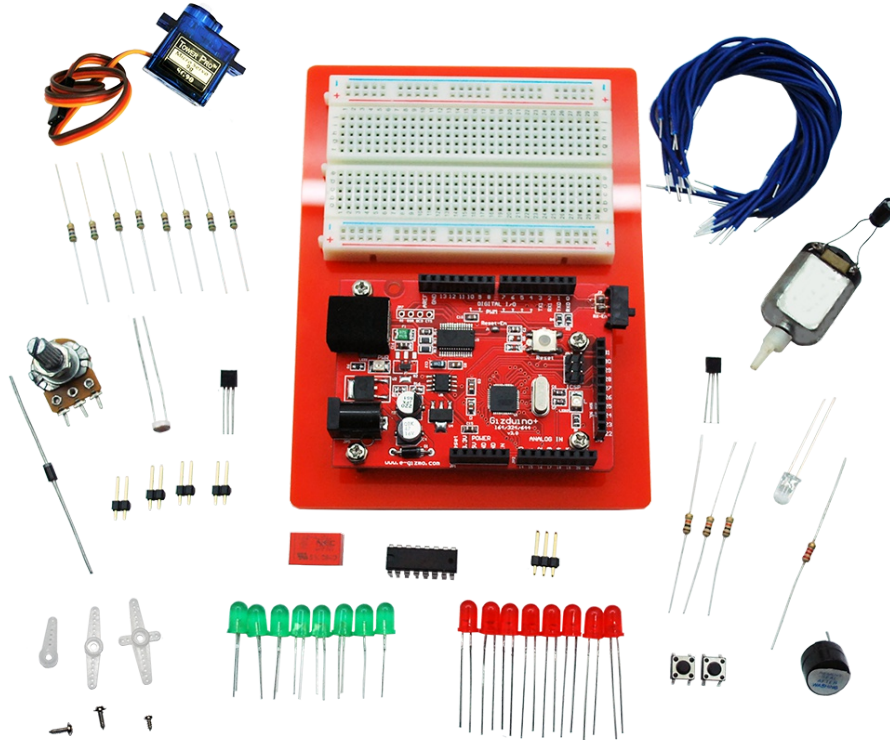


gizDuino Starter Kit

Technical Manual Rev 1r0



The e-gizmo gizDuino Starter Kit with solderless breadboard (ZY-60) and GizDuino + 164/324/644 to choose from. It has a microcontroller board based on the Arduino boards. It has 32 digital input/ output pins, 8 analog input, with 16 MHz crystal oscillator, USB connections, a power jack for external supply, an ICSP header, a reset button and a slide switch for disabling the rx serial pin. It is simply connect it to a computer with USB cable Type A - B and power it with a AC to DC adapter maximum of 12VDC adapter or battery to get started.

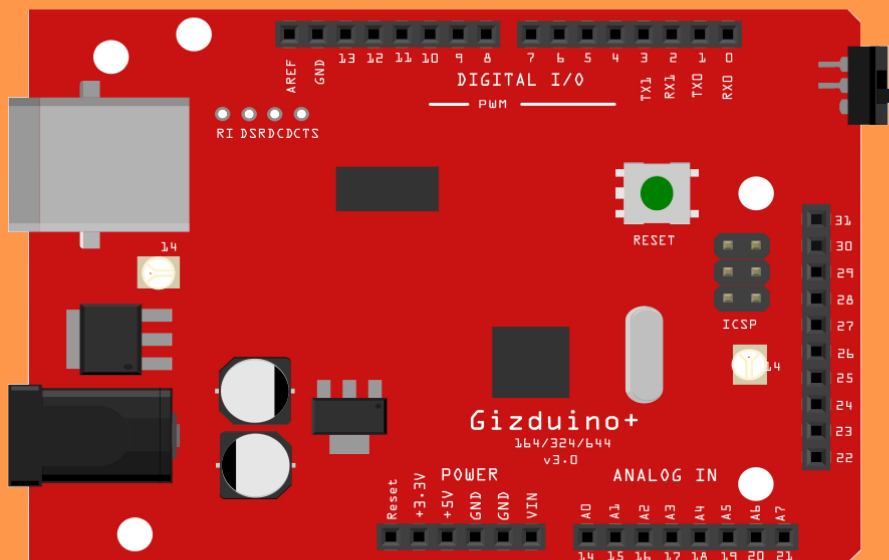
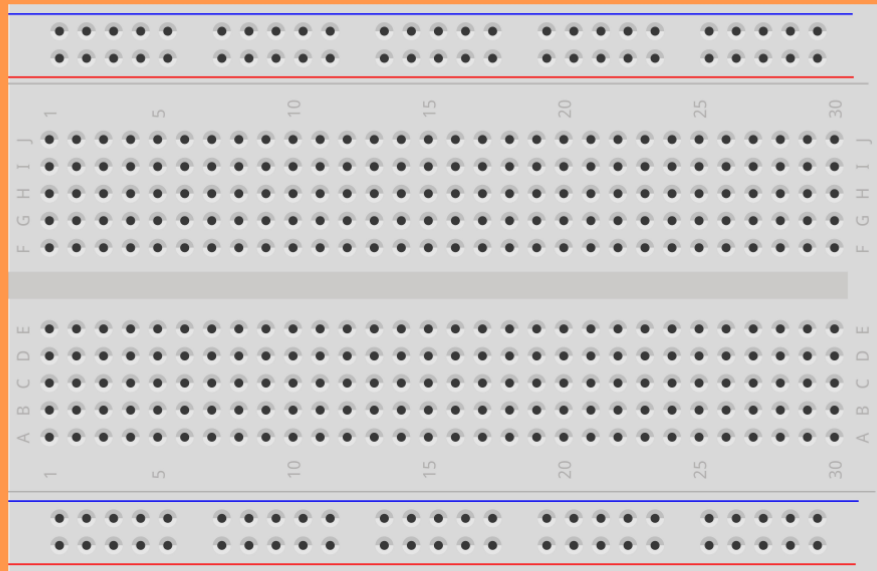
FEATURES:

- It an Open Source Hardware and Software.
- Includes 2x16 LCD Display* Optional
- Starter kit with gizDuino + and solderless breaboard
- Sample codes and Sample Applications Included.
- Technical Manual Included.

GENERAL SPECIFICATION:

- Microcontroller:ATmega644P/324P/164P
- User Interface:USB Port,DC Jack,Reset Button,ICSP Port,Shield Connection Port
- Debbuger Port: ICSP
- Power Input: 8V-12V(External) 5V(USB)
- DC Power Output: 3.3V & 5V
- PCB Size: 2.7 x 2.1 inch
- On-board Crystal: 16MHz

BREADBOARD (3 1/2"x 2")



Gizduino + 164/324/644

Figure 1. gizduino Starter kit

Procedures:

Arduino IDE with gizDuino Patch files.

- *HOMEPAGE:* <http://e-gizmo.com>
- *DOWNLOAD:* <http://e-gizmo.com/Downloads>

Device Driver.

- *gizDuino + uses prolific Chip*
- *DOWNLOAD:* <http://prolific.com/eng/downloads.asp?id=31>

Setting UP.

- *1. Install Arduino Software*
- *2. Install Prolific USB Driver*

Now its Ready to Testing the set-up...

- *Construct the BLINK Sample Application (See Page).*

Table 1. gizDuino Starter kit Materials

Qty	Materials
LCD Display	
1	2x16 LCD Display
Resistors	
8	560 ohms
3	10k ohms
1	2.2k ohms
LEDs	
8	Red (5mm)LED
8	Green (5mm) LED
1	White (5mm) LED
LDR	
1	Photo Resistor 2 pins
Diode	
1	1N4002
Potentiometer	
1	10k ohms
Temperature Sensor	
1	LM35

Qty	Materials
Transistor	
1	MP2222A
Connector	
20	Connecting wires
4	2-pins connector
1	3-pins connector
Motor	
1	DC Motor
1	SG-90 Servo motor
IC	
1	Shift Register SN74LS595N
Buzzer	
1	+5V Buzzer
Relay	
1	Ea2-4.5NU Relay
Switch	
2	Button Switch

Table 2. Blink Materials

Qty	Materials
1	LED (Red) 5mm
1	560 ohms

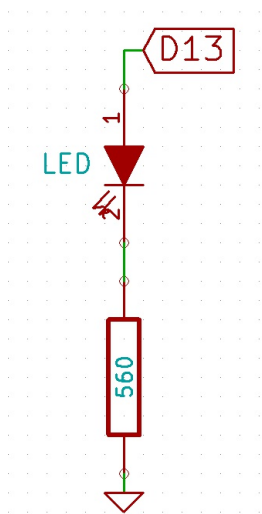


Figure 2. Blink Schematic

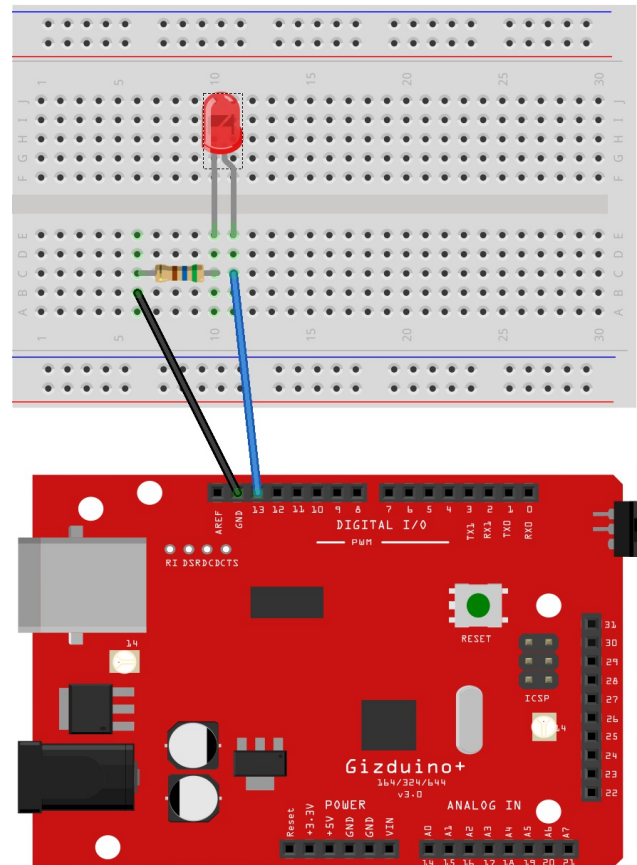


Figure 3. Sample Application for Blink Test

On this blink sample, assemble the materials for blink sample then construct the blink schematic connects the **LED (+) anode to pin 13** and **(-) cathode to the GND** as shown in figure 3. After that **connect the USB Cable to your gizDuino + MCU board** and **open the Arduino IDE software**. Check the your board selection to **Tools>Board>GizDuino + ATmega 644** and select com port to **Tools>Serial port>COM#**. Then **Upload the Blink Sample code**. You will notice that the LED turn on in 1 second and turn off in 1 second.

Table 3. Blink Multiple LEDs Materials

Qty	Materials
8	LED (Green) 5mm
8	560 ohms

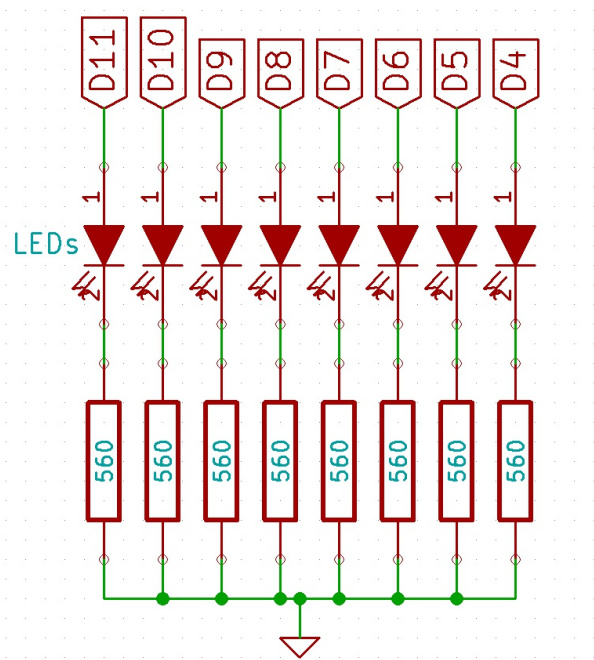


Figure 4. Blink Multiple LEDs Schematic

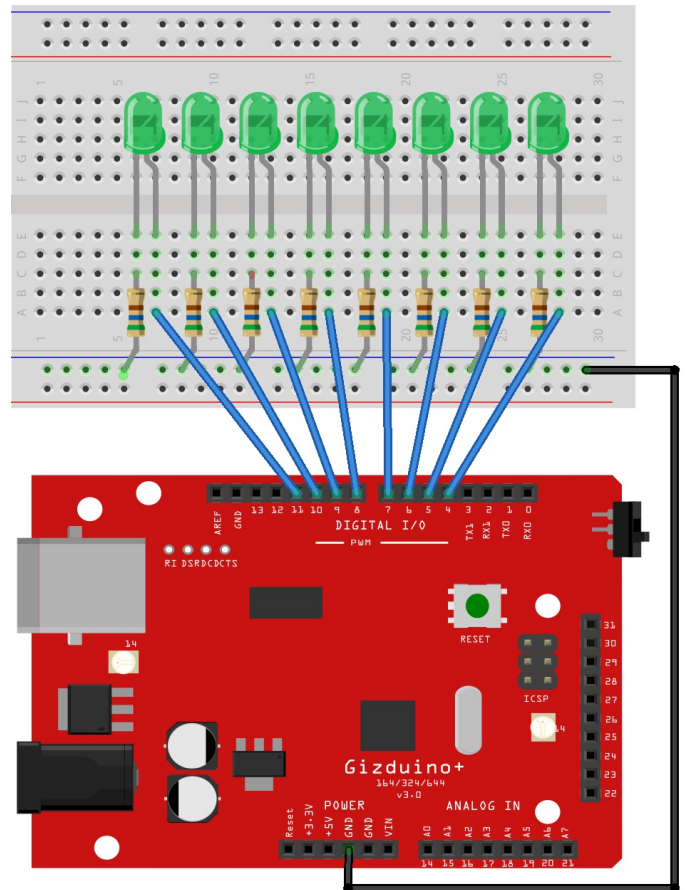


Figure 5. Sample Application for Blink Multiple LEDs

Blinking Multiple LEDs, construct the Sample application for Blink multiple LEDs in Figure 5. Upload the Blink Multiple LEDs sample codes.

Table 4. Latch & Switch Button
Button Materials

Qty	Materials
1	LED (Clear) 5mm
1	LED (Red) 5mm
2	Tact Switch
2	560 ohms
2	10k ohms

For Latch & Switch Button,
Construct the sample application
shown in figure 7. The Upload the
Sample codes.

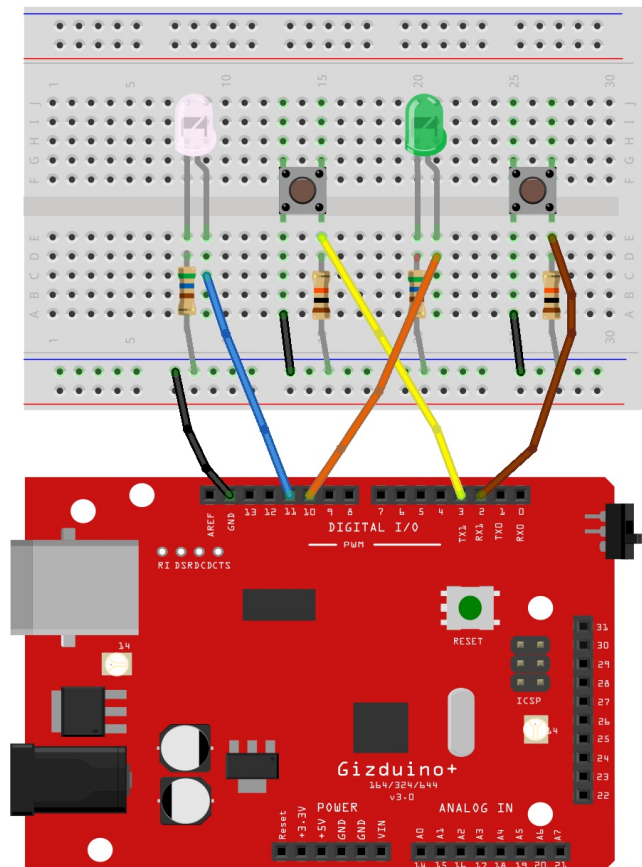


Figure 7. Sample Application
for Latch & Switch Button

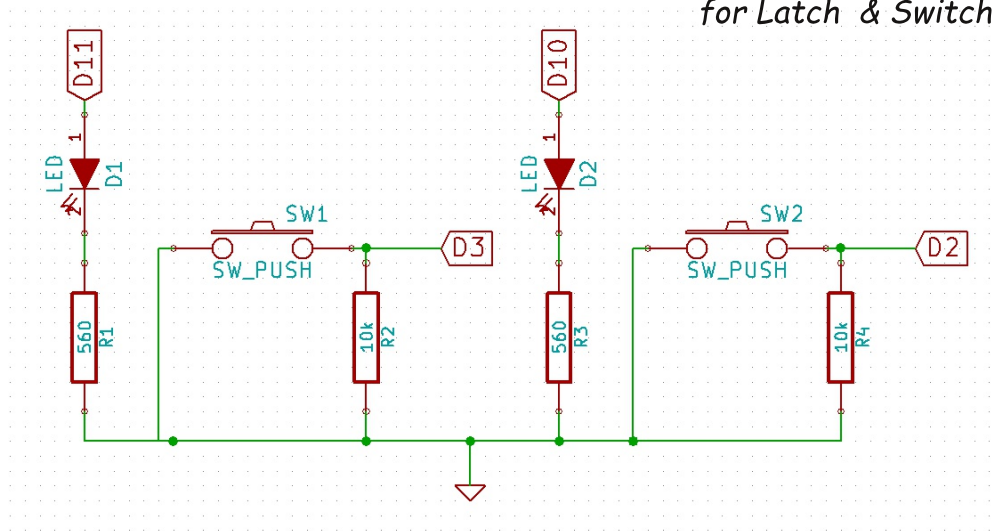


Figure 6. Latch & Switch Button Schematic

Table 5. Potentiometer Materials

Qty	Materials
1	LED (Red) 5mm
1	560 ohms
1	10 K Potentiometer

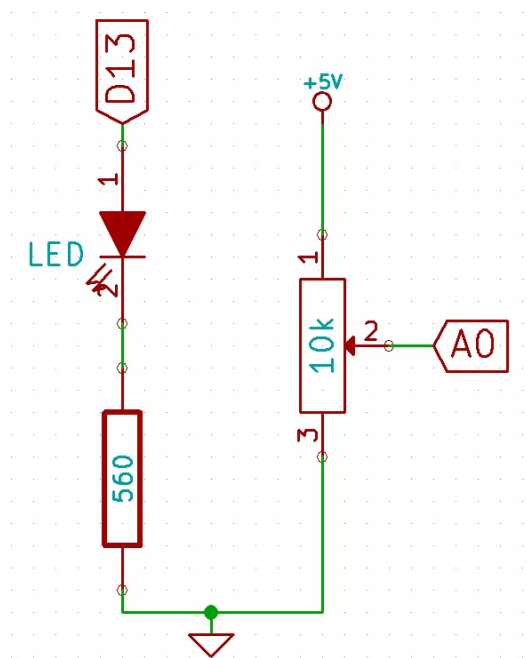


Figure 8. Potentiometer Schematic

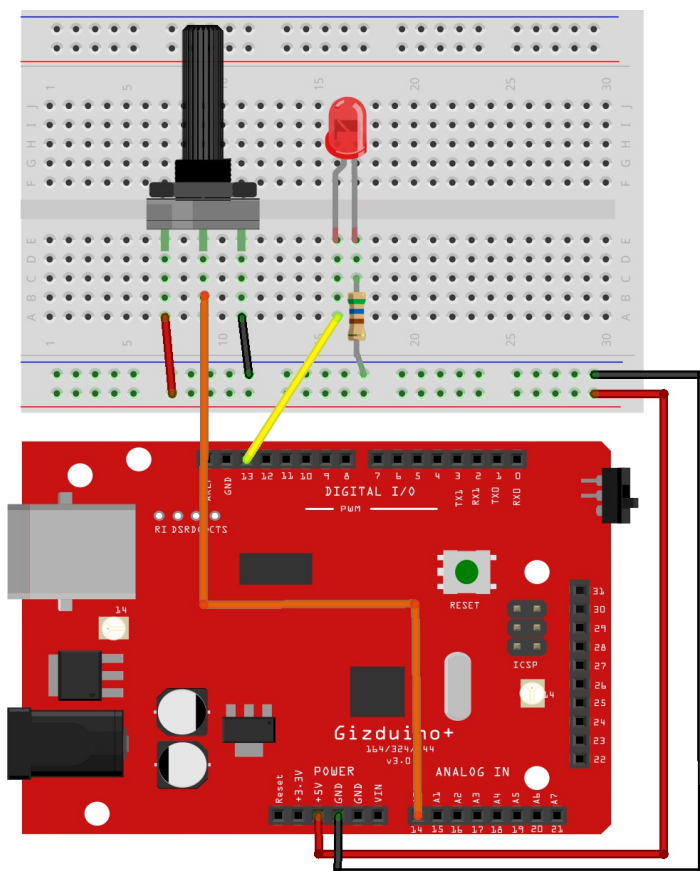


Figure 9. Sample Application for Potentiometer

For testing the Potentiometer with LED heres the Sample application shown in Figure 9. In Potentiometer pin 2 connect it to Analog Input (A0) of gizDuino +. Upload the sample codes.

Table 6. LDR Materials

Qty	Materials
1	LED (Red) 5mm
1	LDR
2	220 ohms

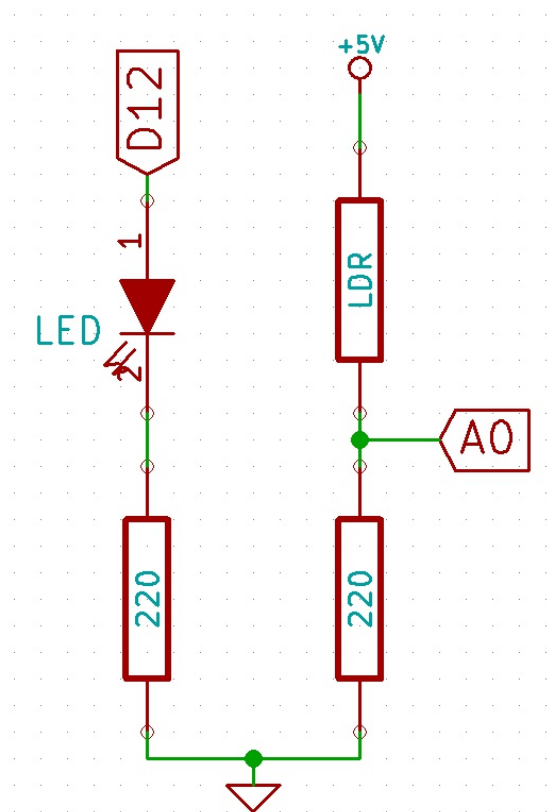


Figure 10. LDR Schematic

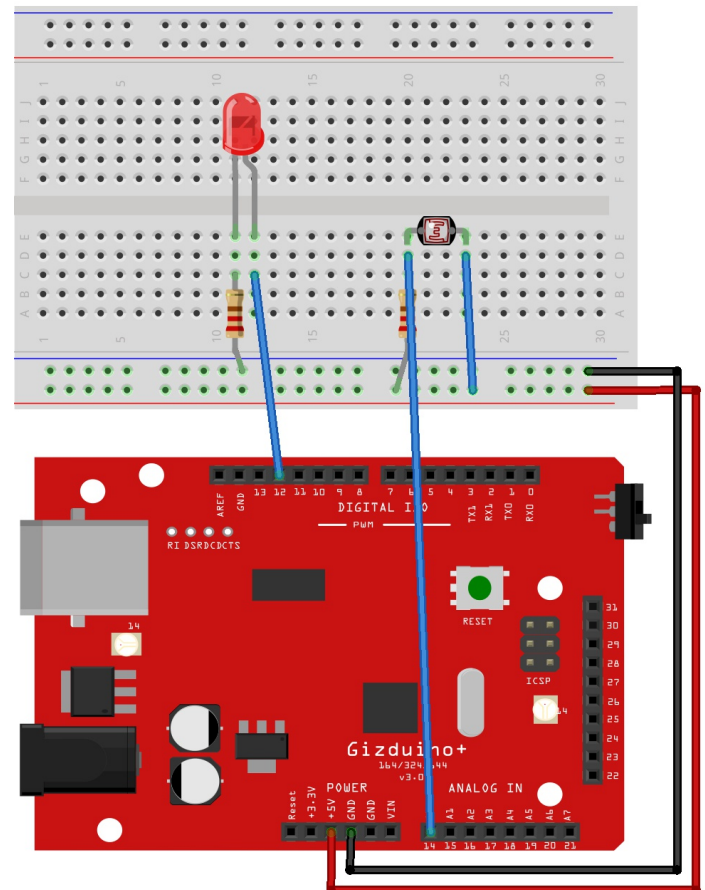


Figure 11. Sample Application for LDR

Using the LDR with LED, construct the sample application shown in figure 11. The Upload the Sample codes.

Table 7. Buzzer Materials

Qty	Materials
1	+5v Buzzer

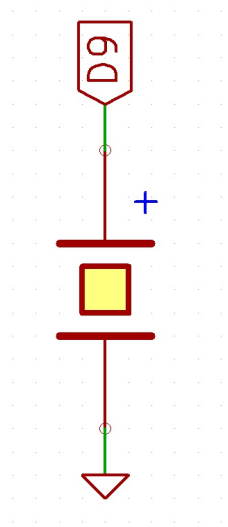


Figure 12. Buzzer Schematic

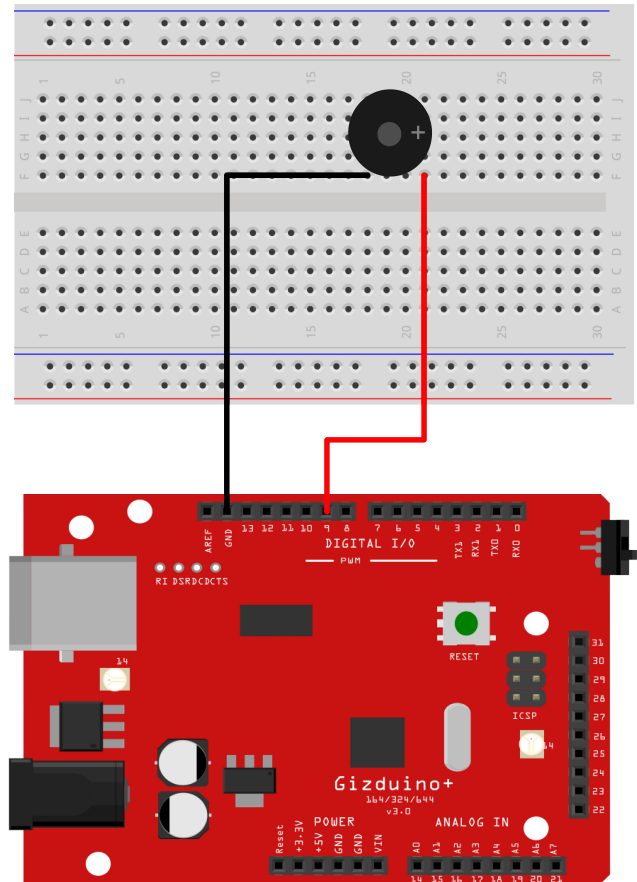


Figure 13. Sample Application for Buzzer

For +5V Buzzer application construct the sample shown in figure 13. Upload the Sample codes.

Table 8. Temperature Materials

Qty	Materials
1	LM35

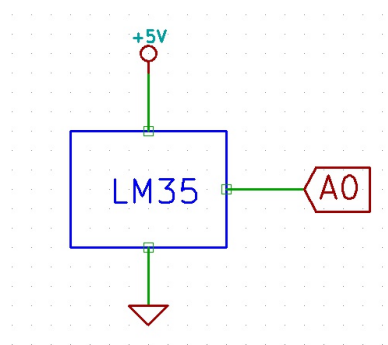


Figure 14. Temperature Schematic

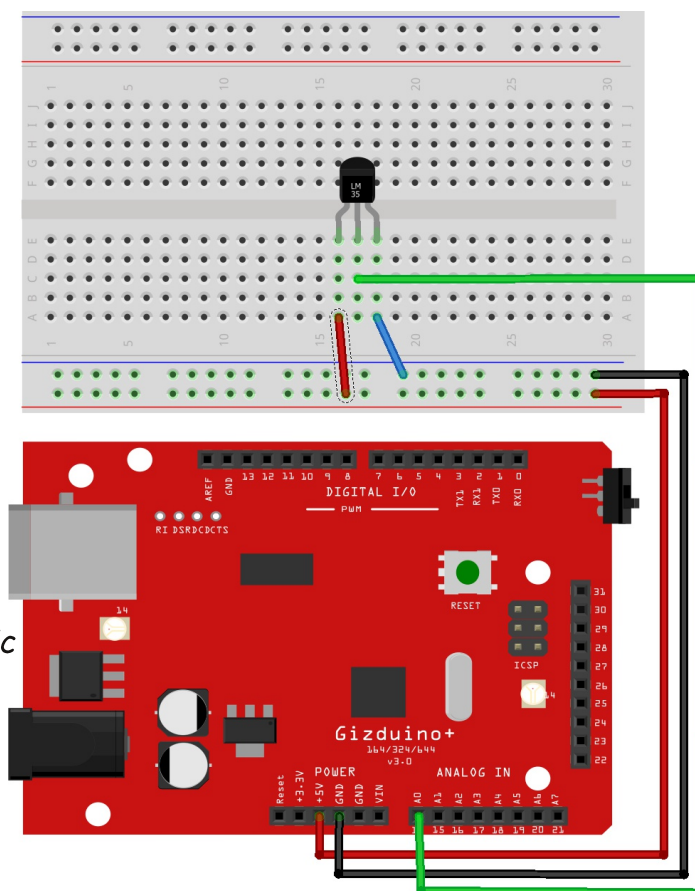


Figure 15. Sample Application for Temperature

For LM35 Temperature sensor application construct the sample shown in figure 15. Upload the Sample codes then Open the Serial Monitor in Arduino IDE to see the temperature reading in LM35.

Table 9. Relay Materials

Qty	Materials
1	Ea2-4.5NU(Relay)
1	LED(Red)5mm

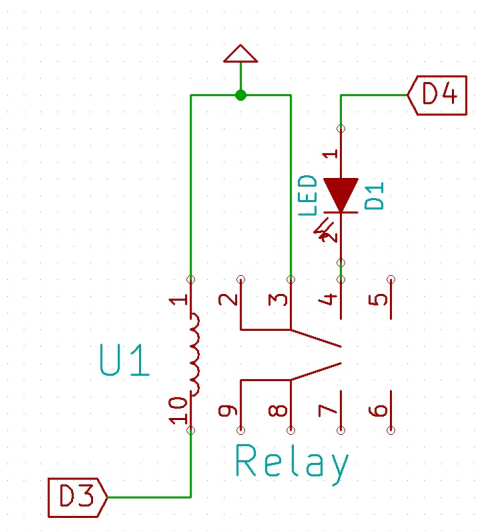
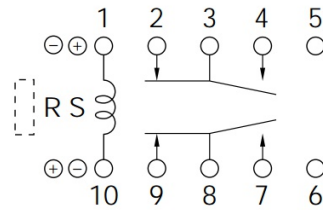


Figure 16. Relay Schematic

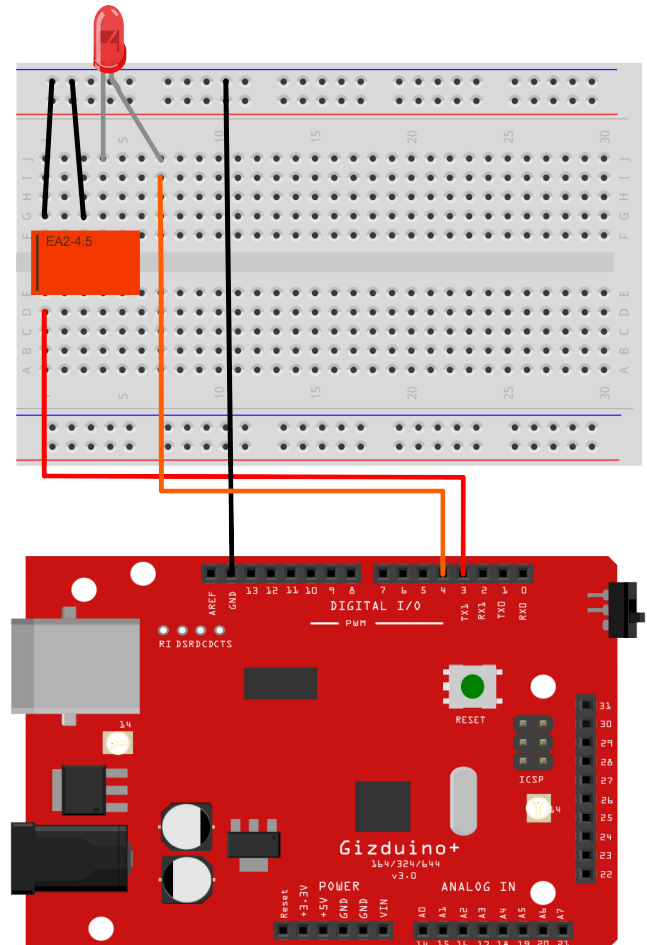


Figure 17. Sample Application for Relay

For Sample application for Ea2-4.5NU Relay with LED application construct the sample shown in figure 17. Upload the Sample codes. After uploading you will notice that the relay is turns ON the pin 3 and pin 4 of the relay will automatically close but the relay is turns OFF the pin 3 & 4 are normally open and pin 2 & 3 are normally close.

Table 10. DC Motor Materials

Qty	Materials
1	DC Motor
1	220 ohms
1	MPS2222A Transistor
1	1N4002 Diode

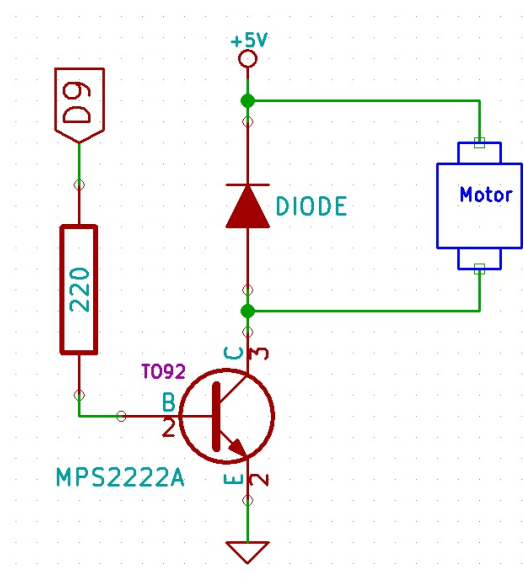


Figure 18. DC Motor Schematic

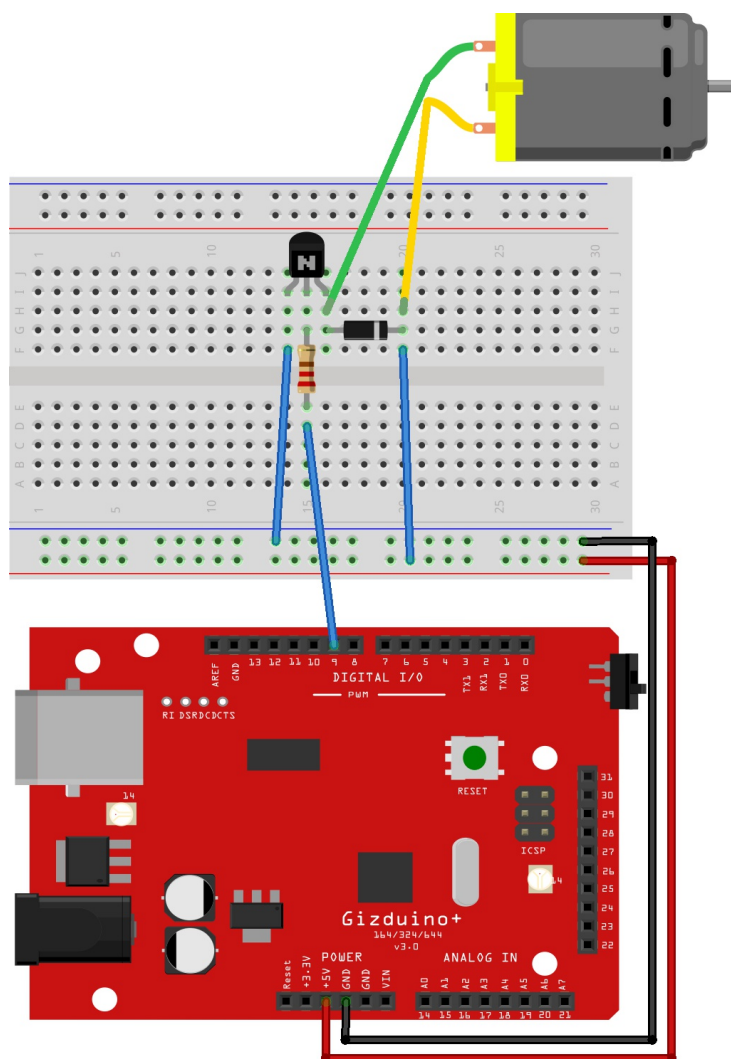
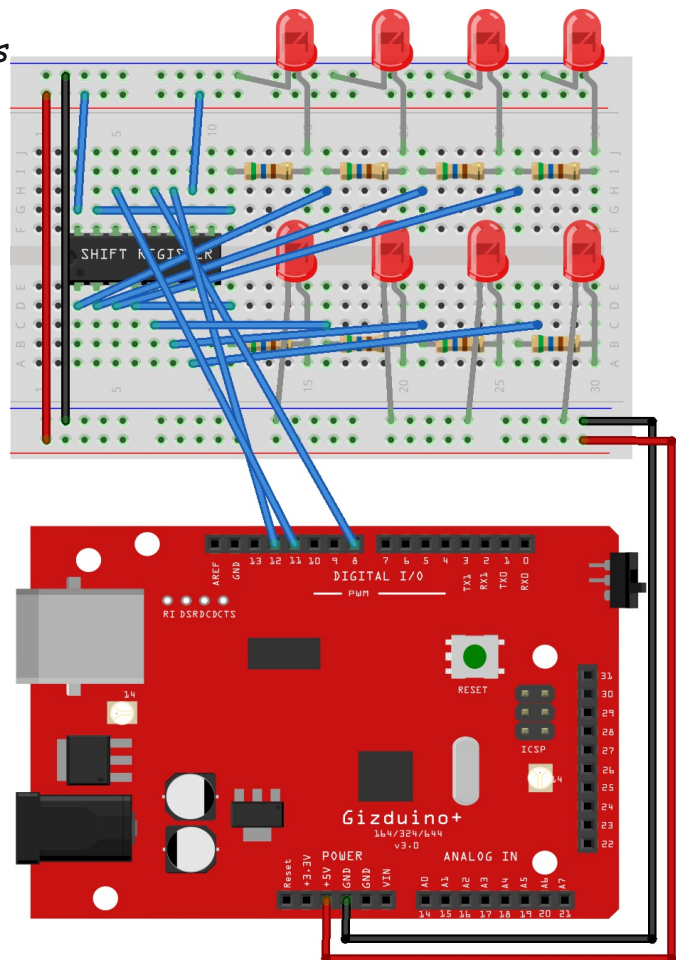


Figure 19. Sample Application for DC Motor

For DC motor application construct the sample shown in figure 19. Upload the Sample codes.

Table 11. Shift Register Materials

Qty	Materials
1	SN74LS595N (Shift Register)
8	LED(Red)5mm
8	560 ohms



For Shift Register Construct the sample application shown in figure 21. The Upload the Sample codes.

Figure 21. Sample Application for Shift Register

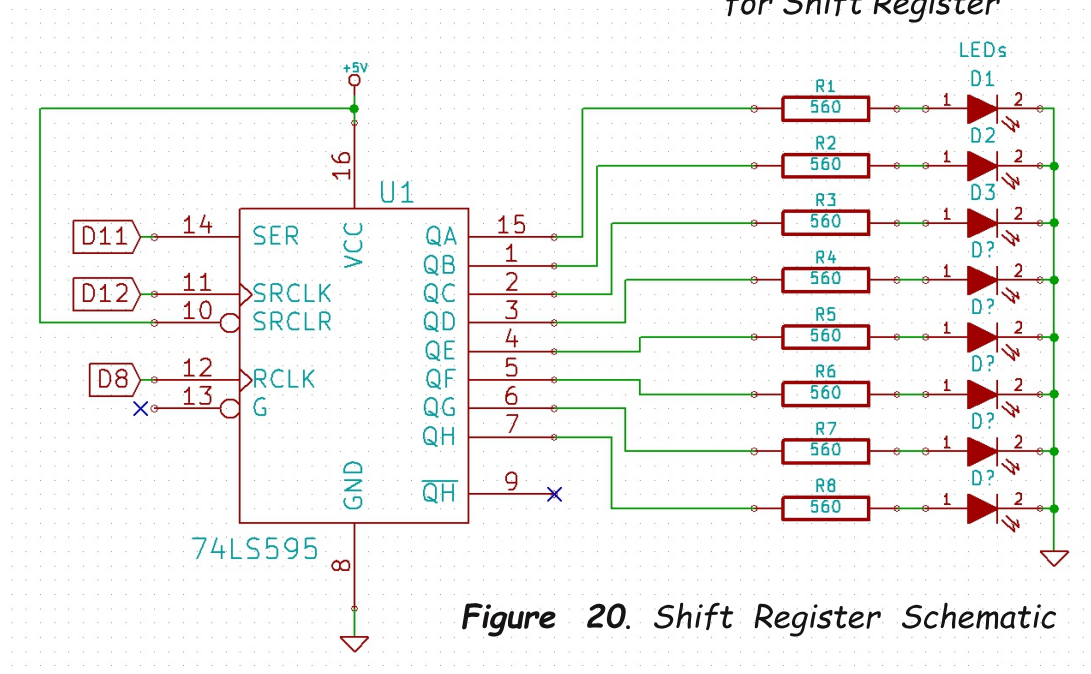


Figure 20. Shift Register Schematic

Table 12. Servo Motor Materials

Qty	Materials
1	10k Potentiometer
1	SG-90

For SG-90 Servo motor, Construct the sample application shown in figure 23. The Upload the Sample codes.

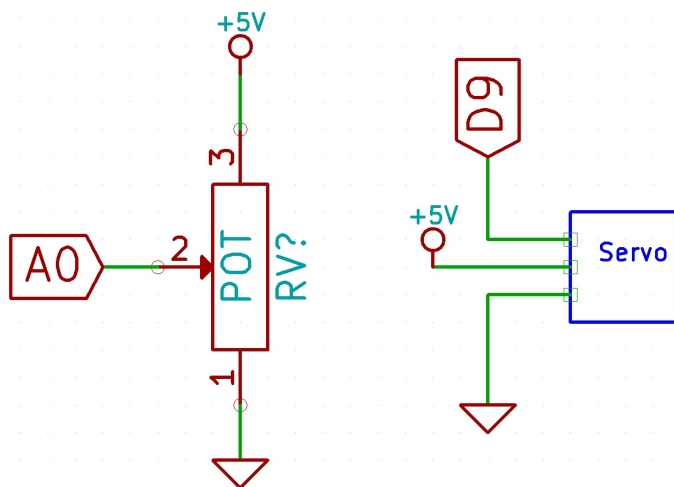


Figure 22. Servo Motor Schematic

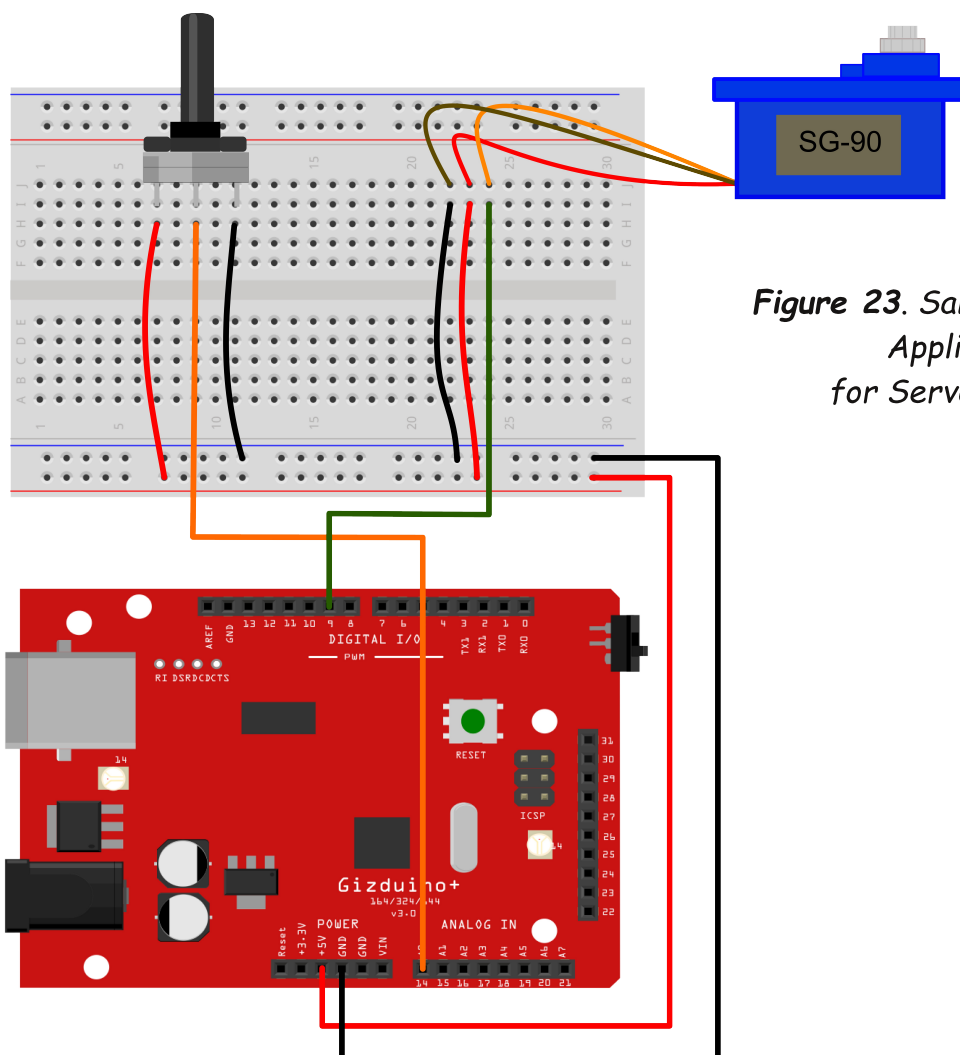


Figure 23. Sample Application for Servo Motor

Table 13. LCD Display Materials

Qty	Materials
1	2x16 LCD Display
1	10K potentiometer

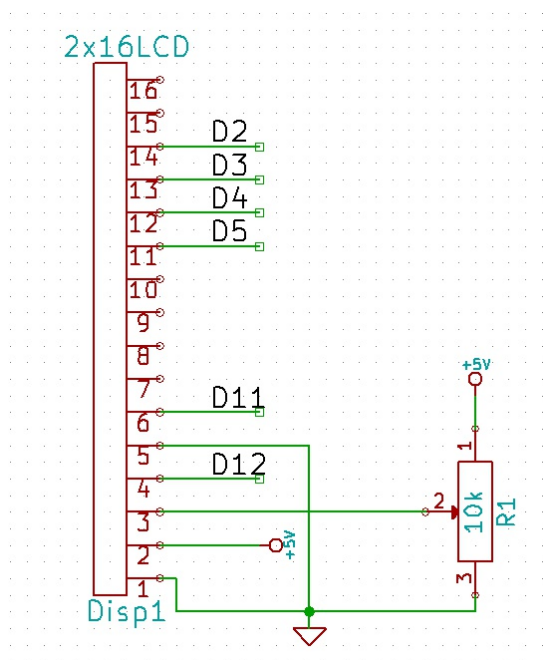


Figure 24. LCD Display Schematic

For LCD Display, Construct the sample application shown in figure 25. The Upload the Sample codes.

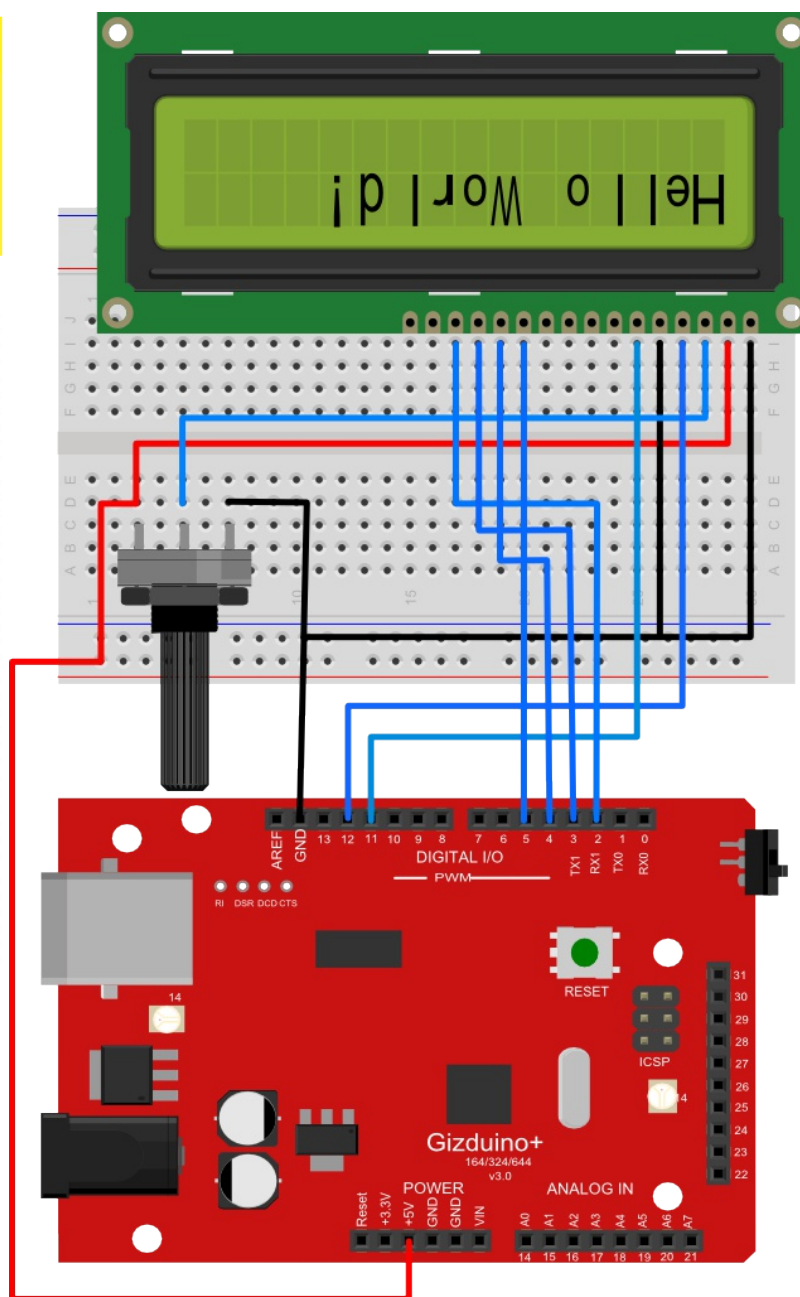


Figure 25. Sample Application for LCD Display