

Experiment No. 3

Title: Serial Communication in Arduino

Aim: To perform serial communication in Arduino.

Components Required

- Breadboard
- Arduino Uno R3
- LED
- Resistors
- Jumper wires

Theory:

Serial Communication is the transfer of data in series to another device. In Arduino, serial communication is done either with a computer or some other devices via USB plug and TX/RX pins of Arduino. The serial communication in Arduino is possible through the TX/RX pins which are dedicated for this purpose.

1: Sending a string from Arduino to PC/serial monitor.

Once we upload the sketch into Arduino. We will see this string will be printing on Serial Monitor Window of Arduino IDE.

Code :

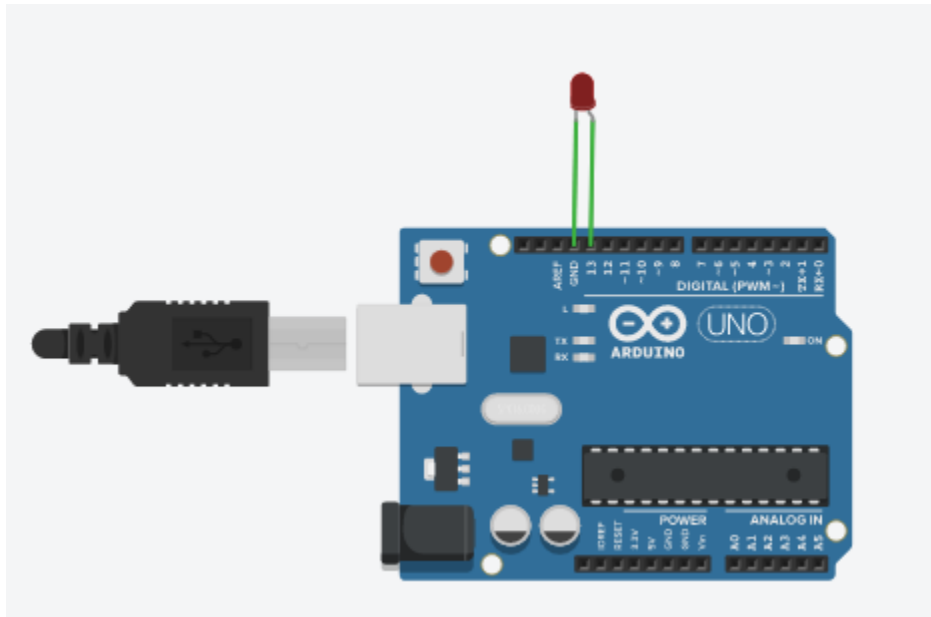
```
void setup() {  
  Serial.begin(9600); //set up serial library baud rate to 9600  
  Serial.println("hello world"); //print hello world  
}  
  
void loop() {  
  
}
```

Output: Hello Word on serial monitor

2: Transmit as well as receive data using Arduino.

Here, the program receives data from PC and then send it back to PC. This way we can perform transmit and receive data using Arduino board.

Circuit Diagram:



Procedure:

Code:

```
int inByte; // Stores incoming command

void setup()
{
  Serial.begin(9600); // open serial port, set data rate as 9600 bps

  pinMode(13, OUTPUT); // Led pin
```

```
    Serial.println("Type 1: LED ON, 0: LED OFF "); // Ready to receive commands
}

void loop()
{
    if (Serial.available() > 0)
    { // A byte is ready to receive
        inByte = Serial.read();
        if (inByte == '1') { // byte is '1'
            digitalWrite(13, HIGH);
            Serial.println("LED - On");
        } else { // byte isn't '1'
            digitalWrite(13, LOW);
            Serial.println("LED - off");
        }
    }
}
```

Result:

Conclusion:

Thus, Serial communication in Arduino is used to transfer the data to the connected device. Every Arduino board contains at least one UART or USART port through which serial communication can be done.