

LAB 9 – REPORT

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PART – A

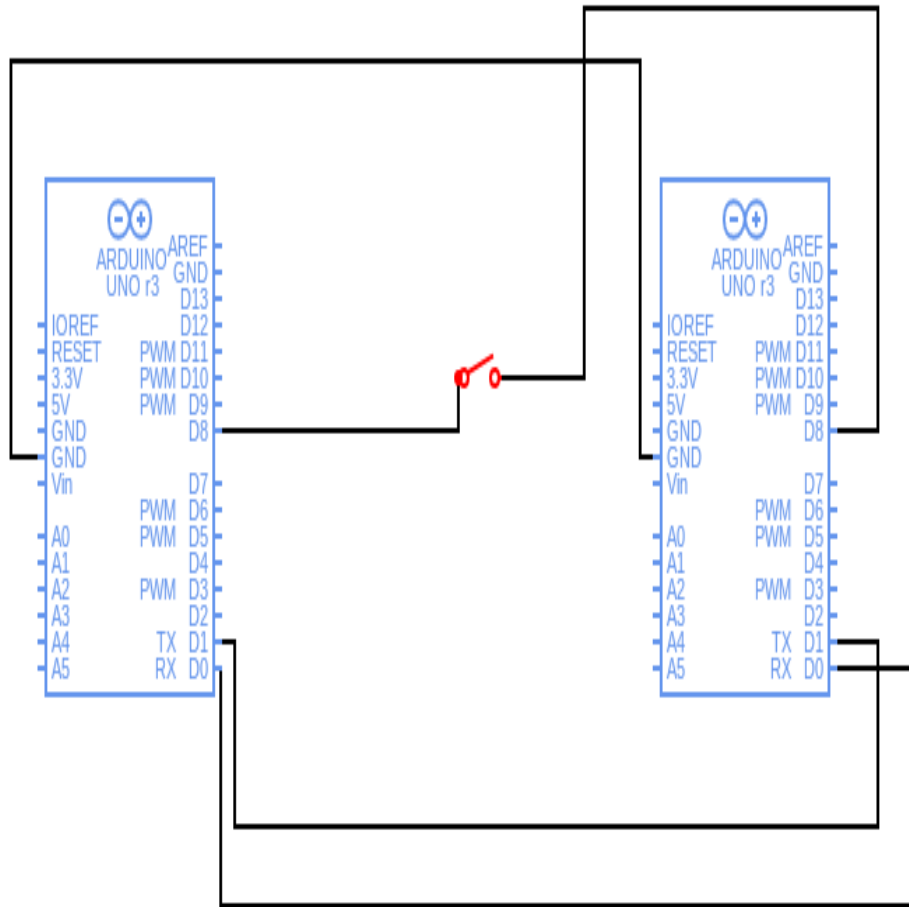
Aim/Objective of the experiment:

To establish a bi-directional serial communication between two microcontrollers (Arduino) and send and receive data (both string and numbers) between two Microcontrollers.

Electronic Components Used:

1. Arduino UNO (2)
2. Connecting wires
3. Toggle Switch

Reference Circuit:



Procedure:

1. Drag the 2 Arduinos to the Tinkercad working area and interconnect their Tx and Rx pins (Tx of one to Rx of another). Connect their ground (GND) pins as well.
2. Connect the switch as shown.
3. Write appropriate code and click on start simulation.

Code (For string):

//if first Arduino is sender

```
char message[100] = "Hello! Hope you are having a good day";
```

```
char display[100];
```

```
int a = 0, b=0;           //both LOW
```

```
int toggle = 8;
```

```
void setup()
```

```
{
```

```
    Serial.begin(9600);
```

```
    pinMode(toggle, INPUT);
```

```
}
```

```
void loop()
```

```
{
```

```
    a = digitalRead(toggle);
```

```
    if (a == b)           //when both are LOW
```

```
    {
```

```
        Serial.write(message, 100); //store message into arduino 2
```

```
        delay(5000);
```

```
    }
```

```
    else                 //when a is HIGH
```

```
    {
```

```
        Serial.readBytes(display, 100); //Read the string from arduino 2
```

```
        Serial.println("Message Received:");
```

```
        Serial.println(display);       //Print data on Serial Monitor
```

```
    //Serial.print("\n");

    delay(5000);

}

}
```

Code (For int):

```
int message = 100;

int display;

int a = 0, b=0;

int toggle = 8;

void setup()

{

    Serial.begin(9600);

    pinMode(toggle, INPUT);

}

void loop()

{

    a = digitalRead(toggle);

    if (b == a)

    {

        if(Serial.available()>0)

            Serial.readBytes(display, 100);    //Read the serial data and store in var

            Serial.println(display);           //Print data on Serial Monitor

    }

}
```

```
    delay(5000);  
}  
else  
{  
    Serial.write(message, 39); //Write the serial data  
    delay(5000);  
}  
}
```

Observation:

It can be observed that the required messages in case of strings and integers are displayed on screen on running the simulation.

[Link for Tinkercad Simulation Circuit \(string\)](#)

[Link for Tinkercad Simulation Circuit integer](#)