**DSM Lab Report**

**Name:** Anirudh Kaushik

**Roll No:** 2020111015

**Group Number:** 5

**Experiment Part A**

**Objective**

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

**Experiment setup/ procedure**

**Materials required:**

|  |  |
| --- | --- |
| 2 | Arduino Uno R3 |

**Procedure:**

Connect the transmission pin of one Arduino to the receiving pin of the other Arduino.

**Code:**

#define WRITE 0

#define READ 1

#define STRING 0

#define INT 1

int A = 10;

int check = WRITE;

int mode = INT;

char string[20] = "hello world";

void setup()

{

Serial.begin(80);

}

void loop()

{

if(check == WRITE)

{

if(mode == STRING)

Serial.write(string,20);

else

{

Serial.write("1");

}

}

if(check == READ)

{

Serial.readBytes(string,20);

Serial.write(string,20);

}

}

**Observations**

The data transmitted by one Arduino is received by the other Arduino, when the configuration of the Arduinos is inverted (master becomes slave and vice-versa) the second Arduino transmits and the first Arduino receives. This is as expected. We are able to transmit both strings as well as integers.

**Conclusion**

Bi directional communication between Arduinos using UART ports was successfully established. We were able to send and receive integers as well as strings.

**Tinkercad link with circuit**

<https://www.tinkercad.com/things/5ph2Ln5dVVB-brave-gaaris-snaget/editel?sharecode=dKJMAlLqdI8xBMYlnkFPhAuPRB2qmonvoynhH-6cJ4k>