EXPERIMENT 8

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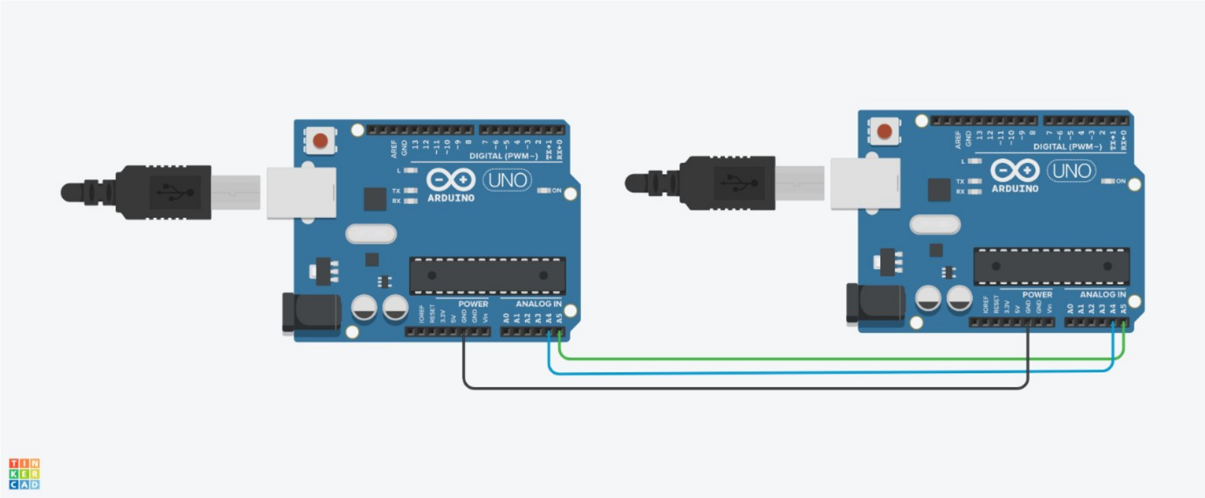
1)

```
//master receiving
#include<Wire.h>
void setup()
{
Wire.begin();
Serial.begin(9600);
}
void loop()
{
Wire.requestFrom(4, 6); // (addr,bytes)
while(Wire.available())
{
char c = Wire.read();
Serial.print(c);
}
delay(500);
}


//slave
#include<Wire.h>
void setup()
{
Wire.begin(4);
Serial.begin(9600);
Wire.onRequest(transmitData);
}
byte x = 0;
void transmitData()
{
Wire.write("x is =");
Wire.write(x);
x++;
}

void loop()
{
}
```



2)

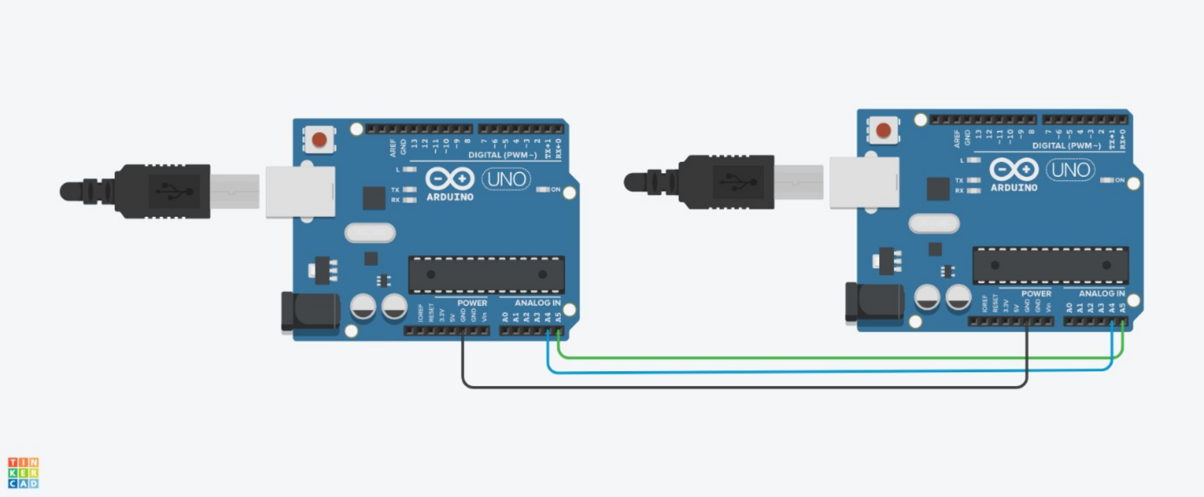
```
//master sender
#include<Wire.h>
int ADDR = 4;
void setup()
{
Wire.begin(); // join i2c bus (address optional for master)
}

byte x = 0;
void loop()
{
Wire.beginTransmission(ADDR);
Wire.write(“x is =”); //5bytes
Wire.write(x);//1byte
Wire.endTransmission();
x++;
delay(100);
}

//slave receiver
```

```
#include<Wire.h>
void setup()
{
Wire.begin(4);
Wire.onReceive(receiveData);
Serial.begin(9600);
}

void receiveData()
{
while(1 < Wire.available())
{
Char c = Wire.read();
Serial.print(c);
}
byte a = Wire.read();
Serial.print(a)
}
void loop()
{
}
```



3)

```
//Client
#include<Ethernet.h>
#include<SPI.h>

byte mac[] = {0xDE, 0xAD, 0xBE, 0xEF, 0xFE, 0xED};
byte ip[]= {10, 0, 0, 177};
byte dns[] ={64, 233, 187, 99};

EthernetClient client; //object

void setup()
{
Ethernet.begin(mac,ip);
Serial.begin(9600);

if(client.connect(serveraddr, 80))
{
   Serial.println(“successful”);
}
else
{
   Serial.println(“fail”);
}


}
void loop()
{
if(client.available())
{
char c = client.read();
Serial.println(c);
}
else
{
if(!client.connected())
{
Serial.println(“stopping”)
client.stop();
}
}

}

//server
#include<Ethernet.h>
#include<SPI.h>

EthernetServer server(80);
byte mac[] = {0xDE, 0xAD, 0xBE, 0xEF, 0xFE, 0xED};
IPaddress ip(192,168,23,8);

void setup()
{
Serial.begin(9600);
Ethernet.begin(mac,ip);
server.begin();
Serial.println(Ethernet.localIP());
}
byte sensorreading = 0;
void loop()
{
EthernetClient client = server.available();
```

```
 if(client)
{
  while(client.connected())
{
client.write(x);
}
client.stop();
Serial.println(“disconnect client”);
}

}
```

4)

```
#include<SPI.h>
#include<WiFi.h>
char ssid[] = {“wifiname”};

void setup()
{
Serial.begin(9600);
if(WiFi.status()==WL_NO_SHIELD)
{
Serial.print(“wifi shield not present”);
}

while(WiFi.status()!=WL_CONNECTED)
{
WiFi.begin(ssid);
delay(10000);
}
Serial.println(“Wifi connected”);
```

```
}


void loop()
{
IPaddress ip = WiFi.localIP()
Serial.println(ip);
 byte mac[6];
WiFi.macAddress(mac)
Serial.print(mac[5], HEX);
Serial.print(“:”);
Serial.print(mac[4], HEX);
Serial.print(“:”);
Serial.print(mac[3], HEX);
Serial.print(“:”);
Serial.print(mac[2], HEX);
Serial.print(“:”);
Serial.print(mac[1], HEX);
Serial.print(“:”);
Serial.println(mac[0], HEX);
 IPaddress subnet = WiFi.subnetMask();
Serial.println(subnet);
 IPaddress gateway= WiFi.gatewayIP();
Serial.println(gateway);

Serial.println(WiFi.SSID());

long strength = WiFi.RSSI();
Serial.println(strength);
 byte routerip[6];
WiFi.BSSID(routerip)
```

```
Serial.print(routerip[5], HEX);
Serial.print(“:”);
Serial.print(routerip[4], HEX);
Serial.print(“:”);
Serial.print(routerip[3], HEX);
Serial.print(“:”);
Serial.print(routerip[2], HEX);
Serial.print(“:”);
Serial.print(routerip[1], HEX);
Serial.print(“:”);
Serial.println(routerip[0], HEX);
 byte encryption = WiFi.encryptionType();
Serial.println(encryption, HEX);
}
```