MIDDLE EAST TECHNICAL UNIVERSITY

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

EE 493-DESIGN STUDIO 1

WEEKLY REPORT IX

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Date: 28.11.2019-05.12.2019

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1. SUMMARY OF THIS WEEK'S PROGRESS

At this week, we mainly focused on the reading of the transmitted bits by Arduino Uno. Below code is written for reading the transmitted data.

```
#define potpin A0
int deger =0;
int i=0;
int j=11;
int count=49;
int checkCount= 0;
int startArr[12]={1, 0, 0, 0, 0, 1, 1, 0, 0, 0, 1, 1};
int ControlArr[12];
int start=0;
int atama;
int ReadData[50];
void setup() {
  // put your setup code here, to run once:
pinMode(10,INPUT);
Serial.begin(9600);
Serial.println("Voltage Value:");
}
void loop() {
 ////////
  deger = digitalRead(10);
  delayMicroseconds(416);
  /////
while (j>=0&&start==0);
{
  atama=ControlArr[j];
  ControlArr[j+1]=atama;
  j--;
}
ControlArr[0]=digitalRead(10);
j=11;
///////
```

```
while(ControlArr[i]==startArr[i]&&start==0)
{
 i++;
 checkCount++;
 if(checkCount==12)
  { start=1;
    checkCount=0;}
}
checkCount=0;
i=0;
/////////
while(count>=0&&start==1)
{
 count--;
 ReadData[count]=deger;
 }
 }
```

We aimed to introduce a start signal which aims to indicate the starting of the communication. At the receiver and, we tried to check whether the start signal received or not.

As a result, we could not receive the transmitted bits correctly due to the sampling rate of the Arduino. Although we changed the sampling-related part of the code, we could not receive the correct results. Arduino samples the logic 1 for six times and logic 0 for 6 times in a period of a square wave with %50 duty cycle. To solve this problem, we can adjust the clock of the Analog-to-Digital converter of the Arduino.