University of Turkish Aeronautical Association (UTAA)

Faculty of Engineering Computer Engineering

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Home Security System

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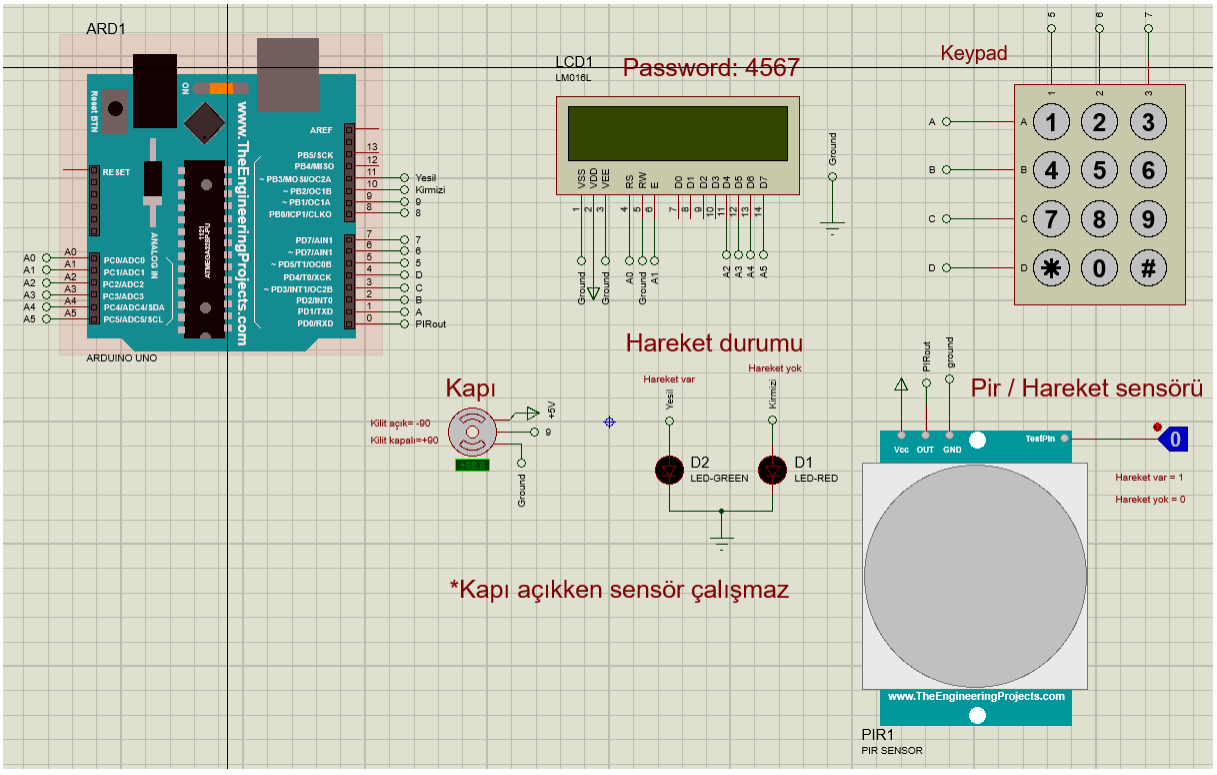
Overview

This project is generally a prototype of a security system. It has a password system which is works in order to simulate a safety guard. The motion sensor and the password system work in a harmony. When the given password is true the motion sensor stops working but if the system is on the locked mode the motion sensor will keep working



CODE

```
#include <Keypad.h>
#include <String.h>
#include <LiquidCrystal.h>
#include <Servo.h>
Servo myservo;
int pos=0; // LCD Connections

LiquidCrystal lcd(A0,A1,A2,A3,A4,A5);
const byte rows=4;
const byte cols=3;

char key[rows][cols]= {  //Creating keypad
 {'1','2','3'},
 {'4','5','6'},
 {'7','8','9'},
 {'*','0','#'}
};

byte rowPins[rows]= {1,2,3,4}; //Defining key row
byte colPins[cols]= {5,6,7};   //Defining key columns

Keypad keypad= Keypad(makeKeymap(key),rowPins,colPins,rows,cols);

String password="4567";       //Setting password
int currentposition=0;        //current posistion used for returning starting position
int redled=10;               //Setting led to 10th pin
int greenled=11;              //Setting led to 11th pin
String epass = "";           //Password that we get from keypad keys
bool kapi=false;             //Status of gate

void setup() {
```

```
 displayscreen();
 Serial.begin(9600);
 pinMode(redled, OUTPUT);
 pinMode(greenled, OUTPUT);
 myservo.attach(9);          //Servo attached to 9th pin
 myservo.write(180);
 lcd.begin(16,2);

}

void loop() {

 if(kapi==false){           //This used for starting the simulation as door closed
  pirsensor();

 if(currentposition==0) {
  displayscreen();
 }

 int l ;
 char code=keypad.getKey();   //Getting digits from keypad

 if(code!=NO_KEY) {
  epass = epass + code;
  lcd.clear();
  lcd.setCursor(0,0);
  lcd.print("Password:");
  lcd.setCursor(10,0);
  for(l=0; l<=currentposition; ++l) {

   lcd.print("*");
  }
```

```
   ++currentposition;


  if(epass.length()==4){       //If the pressed number of digits equals to 4 it checks for the correctness


   if (epass[0]==password[0]&&epass[1]==password[1]&&epass[2]==password[2]&&epass[3]==password[3])
// Compares the password and pressed password digit by digit
   {
      kapi=true;
      unlockdoor();
      currentposition=0;
      epass="";
   }


   else {                  //If the pressed password is wrong
     incorrect();
     currentposition=0;
     epass="";
   }
}


  }
}


  else{                   //If the gate is open
    char code=keypad.getKey();
      if(code=='*'){
        kapi=false;
        lcd.clear();
        lcd.setCursor(3,0);
        lcd.print("RELOCKING...");
        for(pos = 0; pos <= 180; pos +=5) { // goes from 0 degrees to 180 degrees
        myservo.write(pos);              // tells servo to go to position in variable "pos"
```

```
  }
        delay(1000);
        lcd.clear();
        lcd.setCursor(6,0);
        lcd.print("LOCKED");
        delay(1000);

         displayscreen();
         currentposition=0;

       }
    }
}
//Loop Ends//

//***pirsensor function***//

void pirsensor(){
  int pirState=digitalRead(0);

 if(pirState==LOW){               //Motion off
      digitalWrite(greenled,LOW);
      digitalWrite(redled, HIGH);
 }
 else if(pirState==HIGH){          //Motion on
      digitalWrite(greenled,HIGH);
      digitalWrite(redled,LOW);
 }
}



//***Unlockdoor function***//
```

```
void unlockdoor() {
  delay(900);
  lcd.clear();
  lcd.setCursor(1,0);
  lcd.print("Access Granted");
  lcd.setCursor(5,1);
  lcd.println("Welcome");

  for(pos = 180; pos>=0; pos-=5) {  // Goes from 180 degrees to 0 degrees
    myservo.write(pos);           // Tells servo to go to position in variable "pos"
    delay(5);
  }

  digitalWrite(greenled,LOW);
  digitalWrite(redled, LOW);
  delay(500);

}




//***Incorrect function***//

void incorrect() {            //If the pressed password is wrong this function will be executed
  delay(500);
  lcd.clear();
  lcd.setCursor(1,0);
  lcd.print("Code");
  lcd.setCursor(6,0);
  lcd.print("Incorrect");
  lcd.setCursor(15,1);
  lcd.println(" ");
```

```
  delay(2000);
  lcd.clear();

  displayscreen();
}

//***displayscreen function***//

void displayscreen() {          //Starting screen
lcd.setCursor(0,1);
lcd.println("Write password");
lcd.setCursor(0,0);
lcd.println("To open the door");
}
```