/\* Code should be executed in Arduino IDE with the computer connected to Arduino UNO R3

board using USB cable \*/

/\* HUSKLENS.h is used for receiving and transmitting data and also control the algorithms

used by it. \*/

#include "HUSKYLENS.h"

/\* SoftwareSerial is used to connect to the serial monitor which shows output which contains the

signals transmission between Arduino and other parts. \*/

#include "SoftwareSerial.h"

/\* AFMotors are used for specifically control each motor according to the need. \*/

#include <AFMotor.h>

AF\_DCMotor motor1(1, MOTOR12\_1KHZ); /\* Assigning each motor \*/

AF\_DCMotor motor2(2, MOTOR12\_1KHZ);

AF\_DCMotor motor3(3, MOTOR34\_1KHZ);

AF\_DCMotor motor4(4, MOTOR34\_1KHZ);

HUSKYLENS huskylens;

SoftwareSerial mySerial(10, 9); // RX, TX

//HUSKYLENS green line >> Pin 10; blue line >> Pin 11; Transmitting and Receiving signals

void printResult(HUSKYLENSResult result);

/\* Setting up serial number between Arduino UNO and HuskyLens \*/

void setup() {

Serial.begin(115200);

mySerial.begin(9600);

while (!huskylens.begin(mySerial))

{

Serial.println(F("Begin failed!"));

Serial.println(F("1.Please recheck the \"Protocol Type\" in HUSKYLENS (General

Settings>>Protocol Type>>Serial 9600)"));

Serial.println(F("2.Please recheck the connection."));

delay(100);

}

}

/\* The code which is present in this function runs in a loop- loop() function\*/

void loop() {

/\* Checking serial connections \*/

if (!huskylens.request()) Serial.println(F("Fail to request data from HUSKYLENS, recheck the

connection!"));

else if(!huskylens.isLearned()) Serial.println(F("Nothing learned, press learn button on

HUSKYLENS to learn one!"));

else if(!huskylens.available()) Serial.println(F("No block or arrow appears on the screen!"));

else

{

Serial.println(F("###########"));

if (huskylens.available())

{

HUSKYLENSResult result = huskylens.read();

printResult(result);

/\* Assigning a variables for the data received from HuskyLens \*/

int xAxis = result.xCenter;

int yAxis = result.yCenter;

int distance = result.height;

Serial.print("xAxis");

Serial.println(xAxis);

Serial.print("yAxis");

Serial.println(yAxis);

Serial.print("distance");

Serial.println(distance);

/\* When the robot wants to move to the left then motor-2 and motor-4 move backwards and

motor-1 and motor-3 move forwards.\*/

if (xAxis < 140) {

motor1.setSpeed(220);

motor1.run(BACKWARD);

motor2.setSpeed(220);

motor2.run(FORWARD);

motor3.setSpeed(220);

motor3.run(FORWARD);

motor4.setSpeed(220);

motor4.run(BACKWARD);

//delay(10);

/\* When the robot wants to move to the right then motor-2 and motor-4 move forwards and motor1 and motor-3 move backwards.\*/

}else if (xAxis > 200) {

motor1.setSpeed(220);

motor1.run(FORWARD);

motor2.setSpeed(220);

motor2.run(BACKWARD);

motor3.setSpeed(220);

motor3.run(BACKWARD);

motor4.setSpeed(220);

motor4.run(FORWARD);

//delay(10);

}

/\* When the robot want to move forward all the four motors move forward. \*/

else if (distance < 80) {

motor1.setSpeed(200);

motor1.run(FORWARD);

motor2.setSpeed(200);

motor2.run(BACKWARD);

motor3.setSpeed(200);

motor3.run(FORWARD);

motor4.setSpeed(200);

motor4.run(BACKWARD);

//delay(10);

}

/\* When the robot wants to move backward all the four motors move backwards. \*/

else if (distance > 110) {

motor1.setSpeed(200);

motor1.run(BACKWARD);

motor2.setSpeed(200);

motor2.run(FORWARD);

motor3.setSpeed(200);

motor3.run(BACKWARD);

motor4.setSpeed(200);

motor4.run(FORWARD);

//delay(10);

}

/\* Robot is idel when it donot detect anything \*/

else{

motor1.setSpeed(0);

motor1.run(RELEASE);

motor2.setSpeed(0);

motor2.run(RELEASE);

motor3.setSpeed(0);

motor3.run(RELEASE);

motor4.setSpeed(0);

motor4.run(RELEASE);

}

} else {

Serial.println("vision body undetected.");

motor1.setSpeed(0);

motor1.run(RELEASE);

motor2.setSpeed(0);

motor2.run(RELEASE);

motor3.setSpeed(0);

motor3.run(RELEASE);

motor4.setSpeed(0);

motor4.run(RELEASE);

}

}

}