



Computer and control systems engineering department

Faculty Of Engineering

Mansoura University

Robo Soccer 2023/2024

# تيم خليها علي الله

## Supervisors:

- **Dr: Mahmoud Saafan.**


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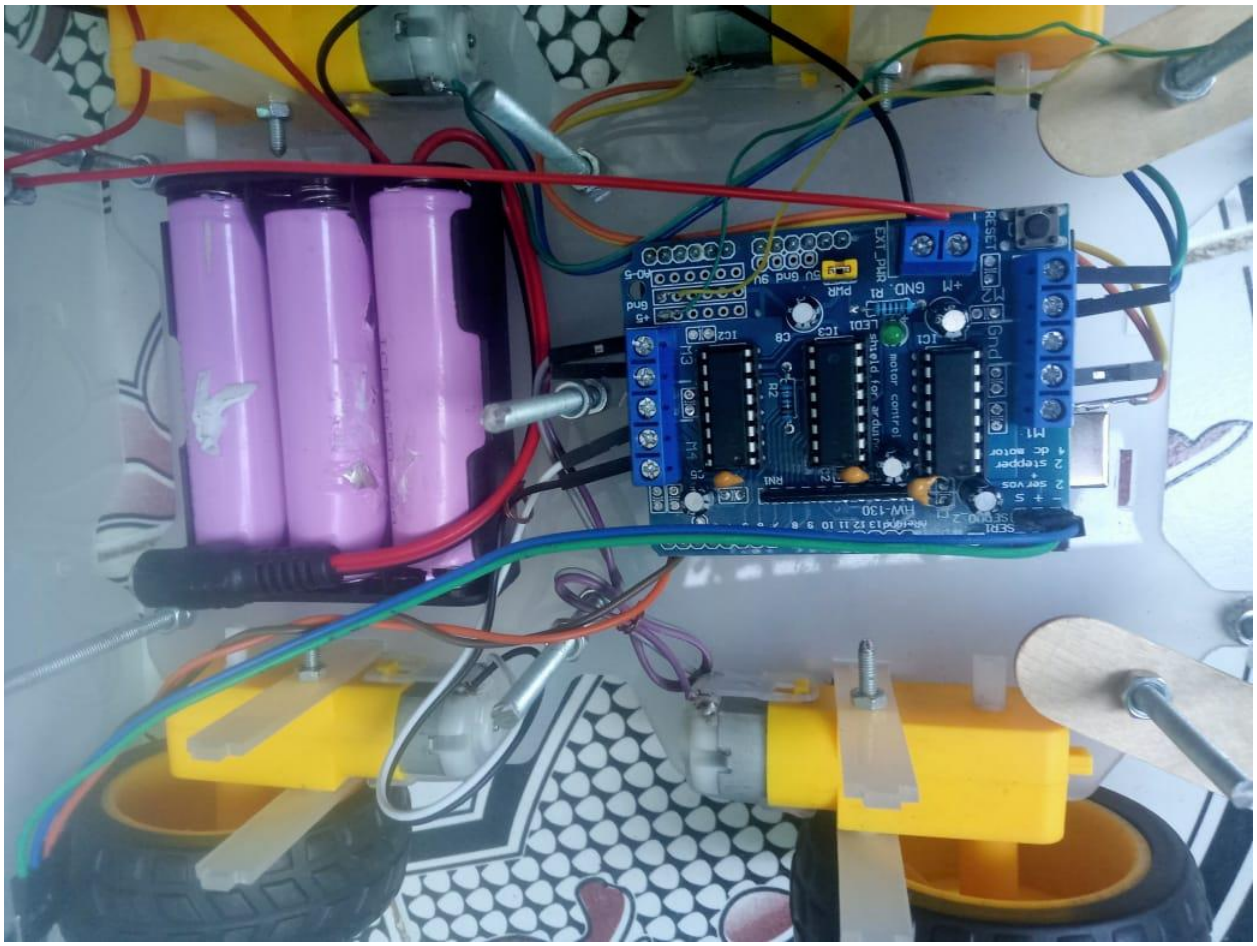
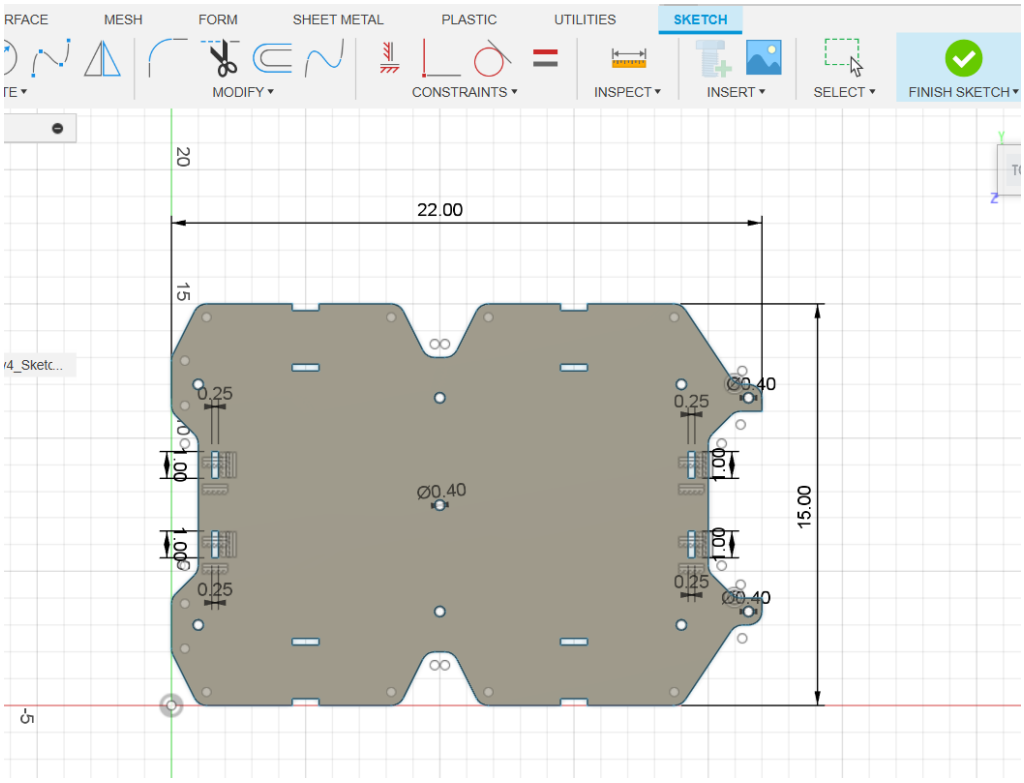


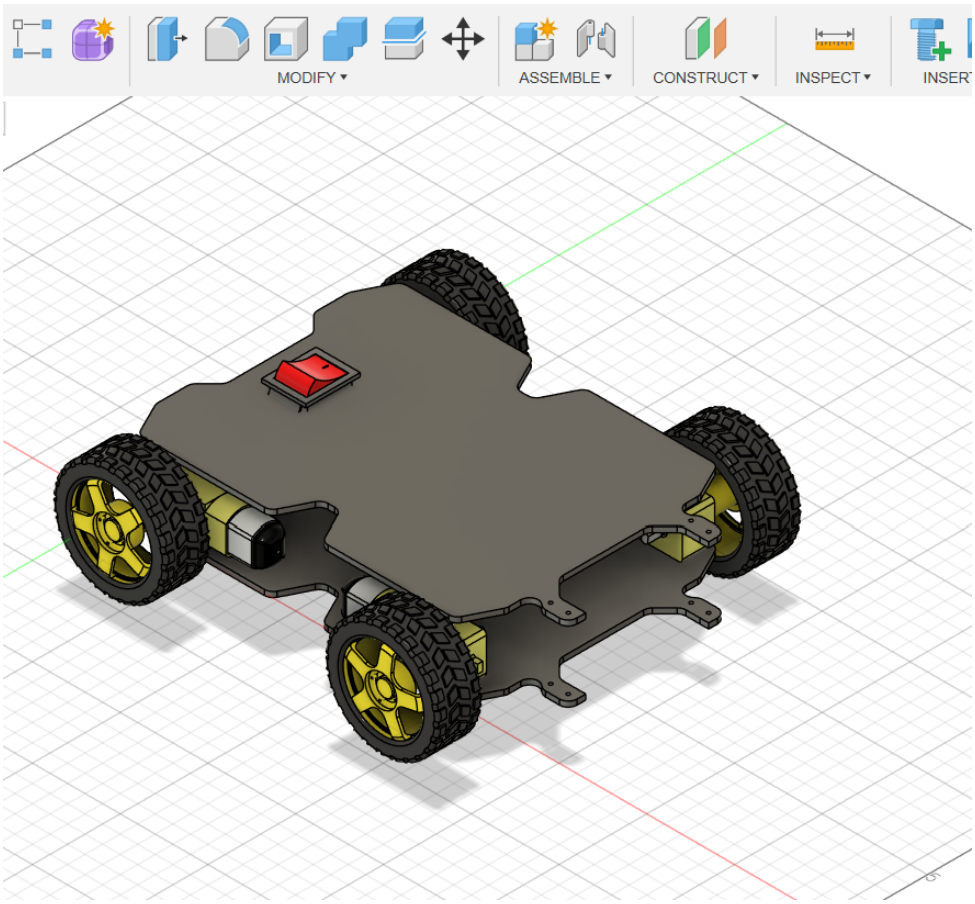
**Team:**

1) **مروان وليد الشهاوى**
2) **مصطفي هشام عبد العظيم**
3) **مصطفي اسلام جويلي**
4) **محمود عزت العجمي**
5) **عبدالحمن محمد جمعه**
6) **احمد ابراهيم امين مرجان**
7) **منه الله محمد عبدالعزيزعطالله**
8) **مريم يوسف المندراوي**
9) **ليليان طارق سمير فهمي**
10) **ندي هاشم محمد**

# Design:

We using Autodesk fusion 360 .



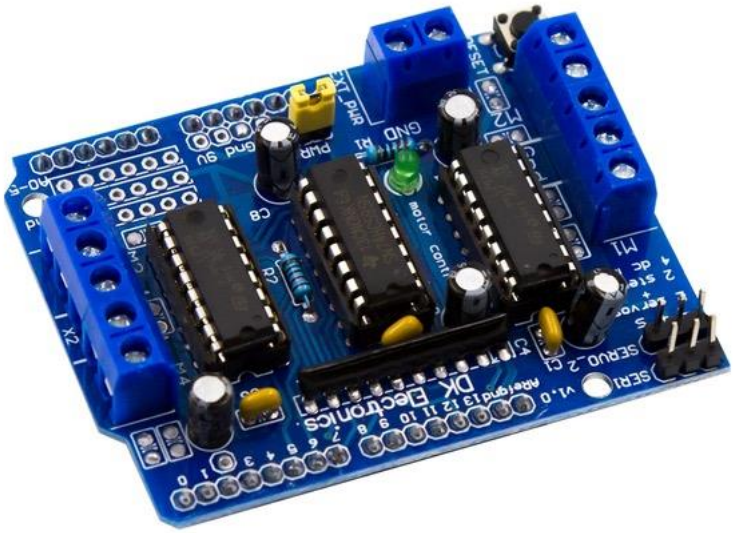



# Components:

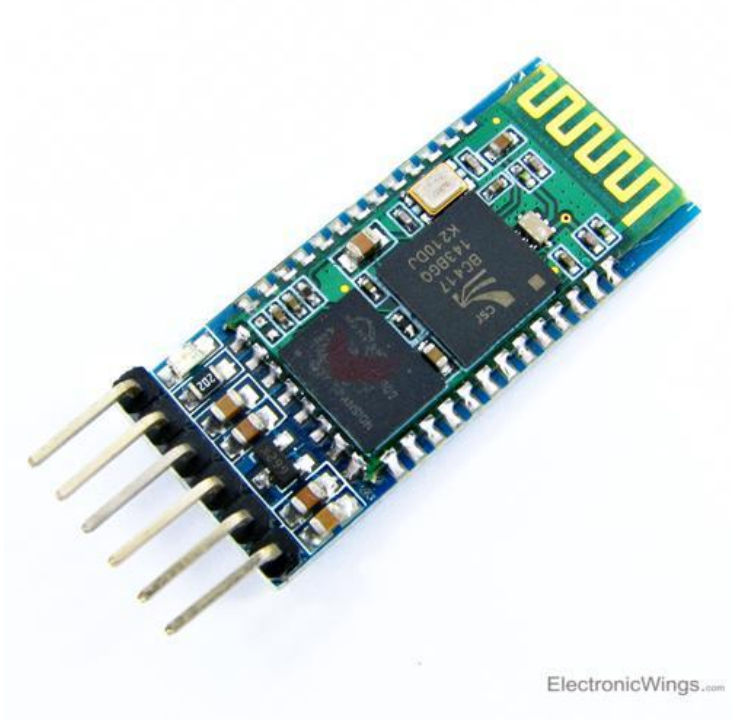
1) Dc Motor With gearbox

2) Arduino uno

3) Motor driver L293d




4) Hc-05 Bluetooth mudule



5) 12v battery

# Code:

```
#include <AFMotor.h>

//initial motors pin
AF_DCMotor motor1(1, MOTOR12_1KHZ);
AF_DCMotor motor2(2, MOTOR12_1KHZ);
AF_DCMotor motor3(3, MOTOR34_1KHZ);
AF_DCMotor motor4(4, MOTOR34_1KHZ);

int val;
int Speeed = 255;

void setup()
{
  Serial.begin(9600);  //Set the baud rate to your
}
void loop(){


  if(Serial.available() > 0){
    val = Serial.read();

    Stop(); //initialize with motors stoped
       if (val == 'W'){
          forward();
          }
           if (val == 'w'){
            Stop();        }
          if (val == 'F'){
          forward();
          }

          if (val == 'B'){
          back();
```

```
if (val == 'B'){
back();
}

if (val == 'L'){
left();
}

if (val == 'R'){
right();
}
if (val == 'I'){
topright();
}

if (val == 'G'){
topleft();
}

if (val == 'J'){
bottomright();
}

if (val == 'H'){
bottomleft();
}
if (val == 'T'){
Stop();
}
```

```
void forward()
{
  motor1.setSpeed(Speeed); //Define maximum velocity
  motor1.run(FORWARD); //rotate the motor clockwise
  motor2.setSpeed(Speeed); //Define maximum velocity
  motor2.run(FORWARD); //rotate the motor clockwise
  motor3.setSpeed(Speeed);//Define maximum velocity
  motor3.run(FORWARD); //rotate the motor clockwise
  motor4.setSpeed(Speeed);//Define maximum velocity
  motor4.run(FORWARD); //rotate the motor clockwise
}

void back()
{
  motor1.setSpeed(Speeed); //Define maximum velocity
  motor1.run(BACKWARD); //rotate the motor anti-clockwise
  motor2.setSpeed(Speeed); //Define maximum velocity
  motor2.run(BACKWARD); //rotate the motor anti-clockwise
  motor3.setSpeed(Speeed); //Define maximum velocity
  motor3.run(BACKWARD); //rotate the motor anti-clockwise
  motor4.setSpeed(Speeed); //Define maximum velocity
  motor4.run(BACKWARD); //rotate the motor anti-clockwise
}

void left()
{
  motor1.setSpeed(Speeed); //Define maximum velocity
  motor1.run(BACKWARD); //rotate the motor anti-clockwise
  motor2.setSpeed(Speeed); //Define maximum velocity
  motor2.run(BACKWARD); //rotate the motor anti-clockwise
  motor3.setSpeed(Speeed); //Define maximum velocity
  motor3.run(FORWARD);  //rotate the motor clockwise
```

Serial Monitor

```
void right()
{
  motor1.setSpeed(Speeed); //Define maximum velocity
  motor1.run(FORWARD); //rotate the motor clockwise
  motor2.setSpeed(Speeed); //Define maximum velocity
  motor2.run(FORWARD); //rotate the motor clockwise
  motor3.setSpeed(Speeed); //Define maximum velocity
  motor3.run(BACKWARD); //rotate the motor anti-clockwise
  motor4.setSpeed(Speeed); //Define maximum velocity
  motor4.run(BACKWARD); //rotate the motor anti-clockwise
}

void topleft(){
  motor1.setSpeed(0); //Define maximum velocity
  motor1.run(RELEASE); //rotate the motor clockwise
  motor2.setSpeed(0); //Define maximum velocity
  motor2.run(RELEASE); //rotate the motor clockwise
  motor3.setSpeed(Speeed);//Define maximum velocity
  motor3.run(FORWARD); //rotate the motor clockwise
  motor4.setSpeed(Speeed);//Define maximum velocity
  motor4.run(FORWARD); //rotate the motor clockwise
}

void topright()
{
  motor1.setSpeed(Speeed); //Define maximum velocity
  motor1.run(FORWARD); //rotate the motor clockwise
  motor2.setSpeed(Speeed); //Define maximum velocity
  motor2.run(FORWARD); //rotate the motor clockwise
  motor3.setSpeed(0);//Define maximum velocity
  motor3.run(RELEASE); //rotate the motor clockwise
  motor4.setSpeed(0);//Define maximum velocity
```

```
void bottomleft()
{
  motor1.setSpeed(0); //Define maximum velocity
  motor1.run(RELEASE); //rotate the motor anti-c
  motor2.setSpeed(0); //Define maximum velocity
  motor2.run(RELEASE); //rotate the motor anti-c
  motor3.setSpeed(Speeed); //Define maximum velo
  motor3.run(BACKWARD); //rotate the motor anti-
  motor4.setSpeed(Speeed); //Define maximum velo
  motor4.run(BACKWARD); //rotate the motor anti-
}

void bottomright()
{
  motor1.setSpeed(Speeed); //Define maximum velo
  motor1.run(BACKWARD); //rotate the motor anti-
  motor2.setSpeed(Speeed); //Define maximum velo
  motor2.run(BACKWARD); //rotate the motor anti-
  motor3.setSpeed(0); //Define maximum velocity
  motor3.run(RELEASE); //rotate the motor anti-c
  motor4.setSpeed(0); //Define maximum velocity
  motor4.run(RELEASE); //rotate the motor anti-c
}


void Stop()
{
  motor1.setSpeed(0);
  motor1.run(RELEASE); //stop the motor when rel
  motor2.setSpeed(0); //Define minimum velocity
  motor2.run(RELEASE); //rotate the motor clockw
  motor3.setSpeed(0); //Define minimum velocity
```

Serial Monitor