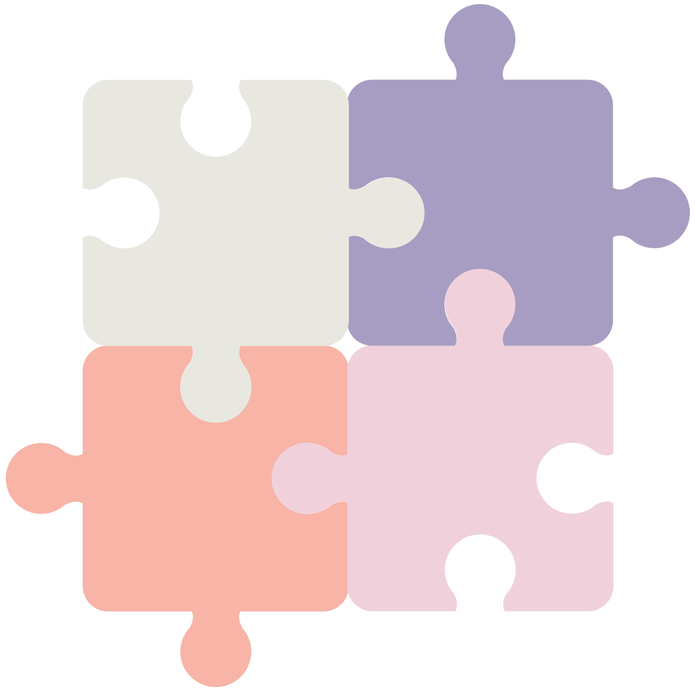
JULY 2021

Endustrial scenario



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OPERATION..

01

• It is a project to manufacture fencing robots that enable them to defend or attack through a human controller via the Internet and using a control interface .

02

The robot consists of two parts: the platform and the arm .

03

The platform is the lower arm-bearing part to which the wheels and engines are attached and some ideas can be added to it to become lighter, more defensive and others .

04

The arm is the moving part of the robot whose primary mission is to attack the excellent expert can use it for defense, the end of the arm must be designed so that it can perform its primary mission excellently and can add some ideas to it to become more flexible and faster to attack or defend .

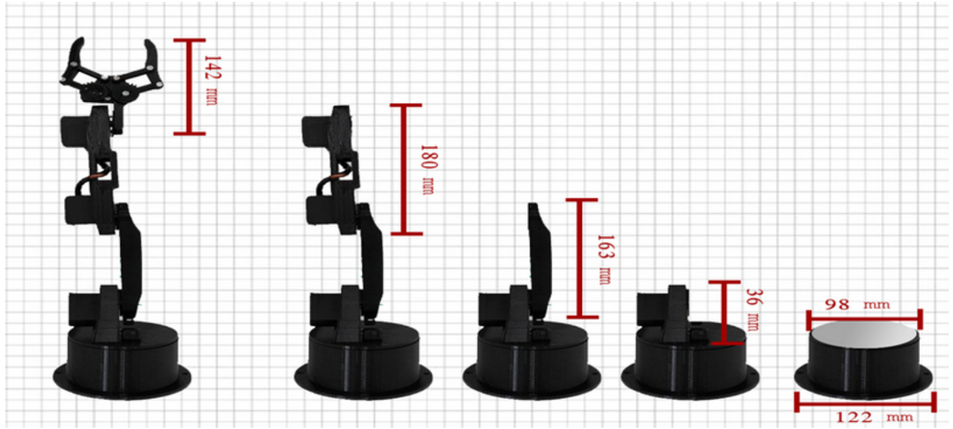
Robot dimensions

The full dimensions of the robot

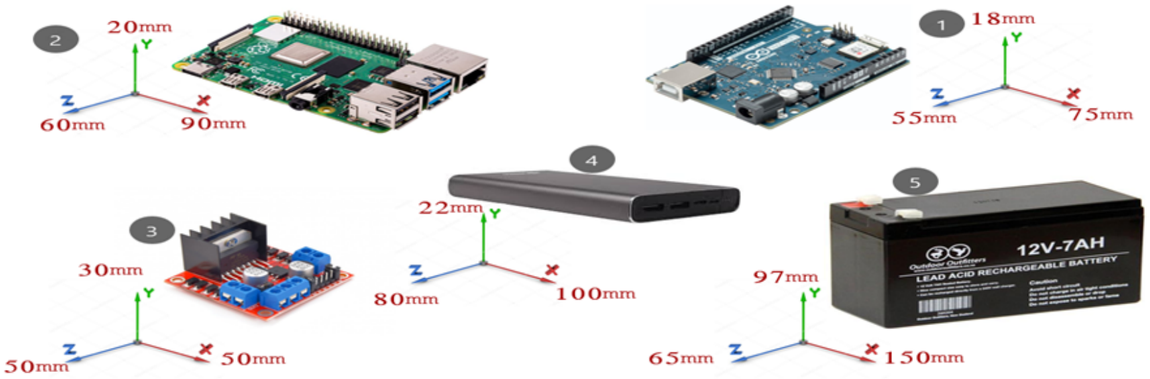
X=600mm , Z=500mm , Y=620mm

arm dimentions

X=122mm , Z=122mm , Y=620mm

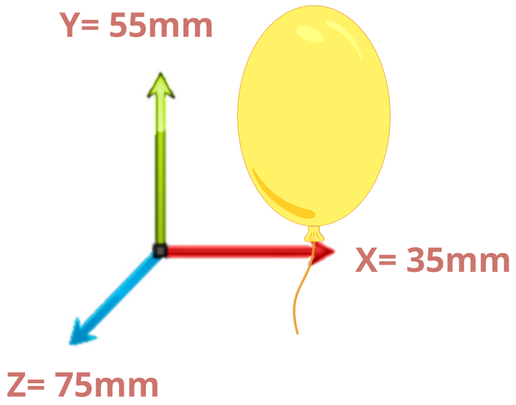


electronic parts dimentions



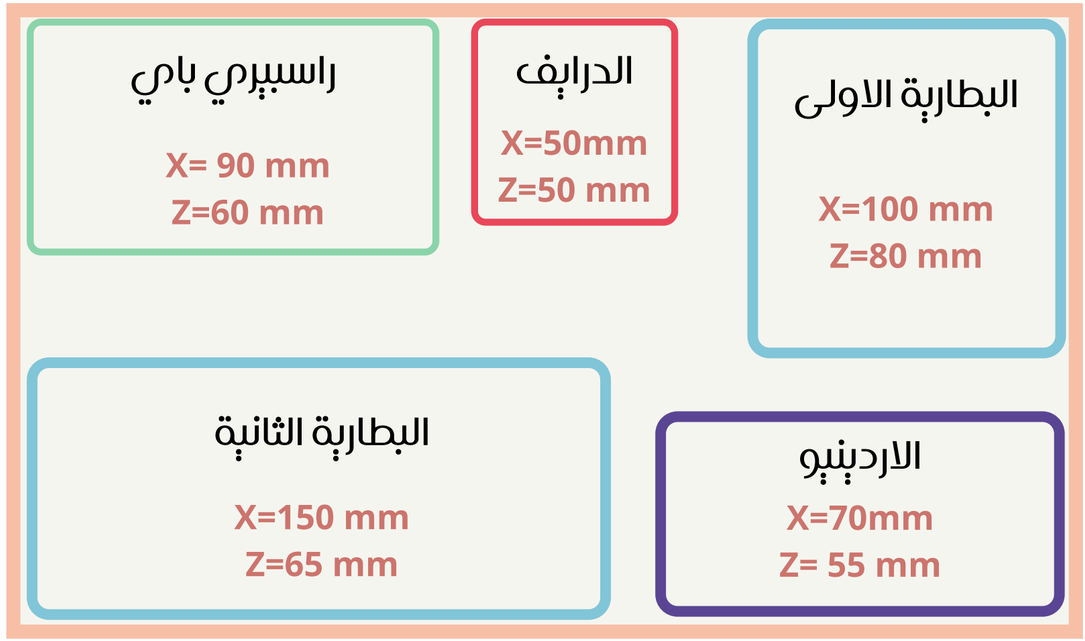
Robot dimensions

balloon dimentions



box dimentions

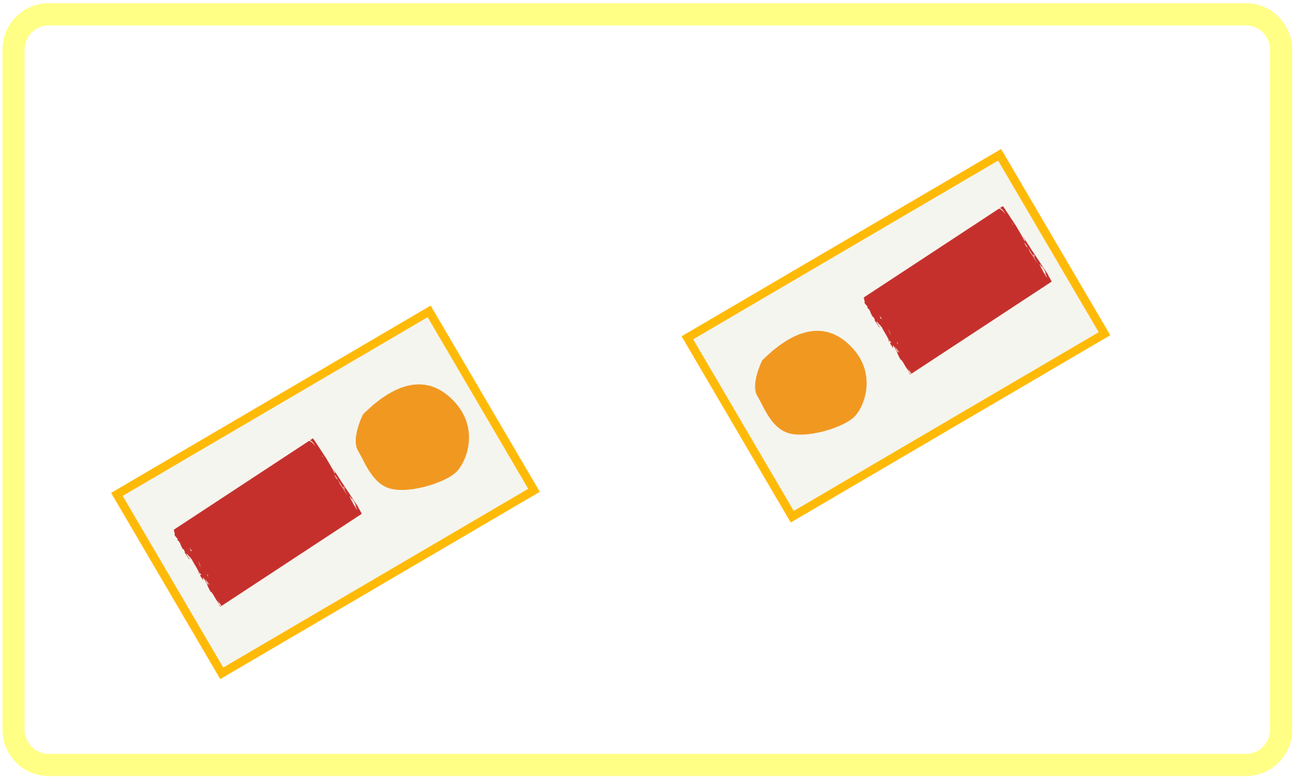
X=270mm , Y=125mm , Z=130mm



Arena dimensions

X=2.5m , Z=2m , A=5m*m

This distance is twice the area of the robots allowing them to get around each other

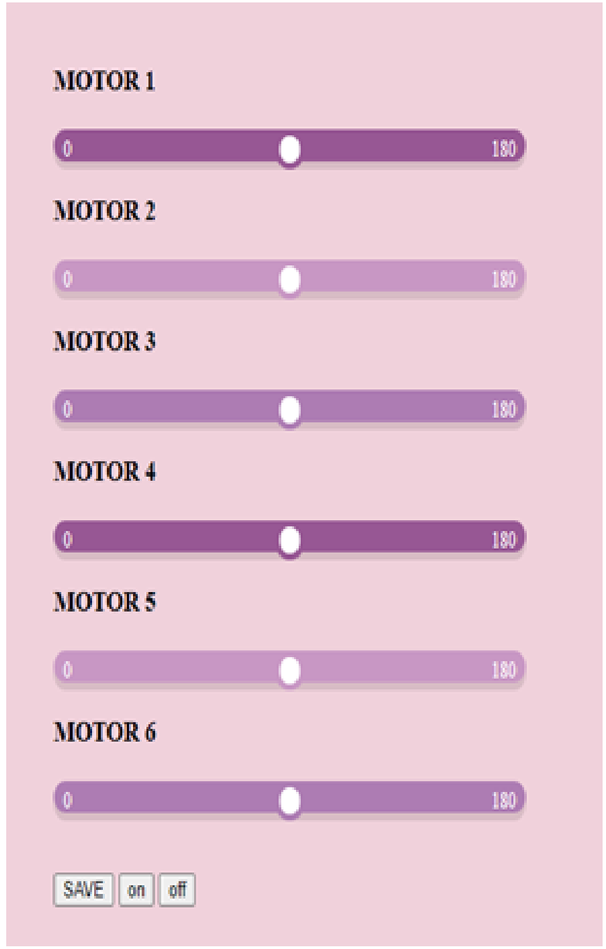


OPERATING LAWS

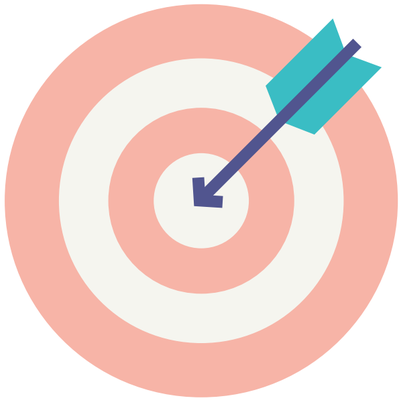
- 1 . THE ROBOT PERFORMS TWO BASIC OPERATIONS IN ANY STRATEGY GAME: DEFENSE AND ATTACK .
- 2 . THE DEFENSE IS DONE BY DODGING OR MANEUVERING TO PROTECT HIS BALLOON .
- 3 . THE ATTACK IS DONE BY ATTACKING WITH THE CONTROLLED ARM TO BLOW THE OPPONENT'S BALLOON .
- 4 . THE END OF THE ARM IS ATTACHED TO A TOOL THAT CAN EASILY BLOW UP THE OPPONENT'S BALLOON .
- 5 . THE TWO DUELING ROBOTS ARE CONTROLLED BY TWO PEOPLE ONLINE .
- 6 . BEFORE ENTERING THE RING YOU MUST MAKE SURE THAT THE TWO ROBOTS ARE OF THE SAME LEVEL .
- 7 . THE ROBOTS MUST BE INSPECTED BY THE RULERS LOOKING FOR HIDDEN CHEATING TOOLS , THE BRUTE ROBOT IS CONSIDERED A LOSER.
- 8 . A FULL MINUTE FOR THE TEAM TO MAKE SURE THE ROBOT IS WORKING PROPERLY WHILE GIVING A QUARTER OF AN HOUR FOR MAINTENANCE IF NECESSARY (NO INCREASE IN TIME CONSIDERED WITHDRAWAL)
- 9 . BANISH THE CROWD AND THE PLAYERS, AND ONLY THE JUDGES IN THE RING .
- 10 . THE ROBOT CRASHES AFTER THAT IS CONSIDERED A LOSS .
- 11. EXIT ROBOT OUT OF THE LOSING RING .
- 12 .FENCING IS DIVIDED INTO TWO ROUNDS BETWEEN A QUARTER-HOUR BREAK AND MAINTENANCE .
- 13. BLOWING UP THE BALLOON UNDER ANY REASON IS CONSIDERED A LOSS .

CONTROL PANEL DESCRIPTION

1. Android is joined by the net and using a simple interface to control.
2. The interface has the on and off buttons at the bottom .
3. It has six sliding keys each motor has its own key .
4. Max left means original position of the engine zero angle and Max right means move 180 degrees .



OPERATION PROCESS



AI

Make the robot smarter by introducing it to the arena and the mission.

IOT

Create an interface and a control panel on a web browser that connects it to the robot via the Internet.

MECHANICS

Designing shapes, calculating dimensions, then printing and installing them .

IELECTRICITY

Choosing the appropriate electronic parts, installing them and then programming .

INDUSTRIAL

Monitoring the progress of the process Coordination between the team Help all .

TESTING !

STEP 1

Functional test

- Test the quality and durability of mechanical parts and the possibility of moving them .
- Test all electronic parts and motors for the base and arm.

STEP 2

Functional test

- Test how well the interface works , And how Lag it is between the interface and the robot .
- Complete installation and testing of the robot .

STEP 3

Non functional test

- Gradually increase the load to determine the maximum load that the robot can handle .
- Continuous work to see how continuity of wor.

STEP 4

Non functional test

- Using the interface with people of different class, to see how easy and clear the interface is .

STEP 5

Additional testing project

- A different robot is used that has been tested to make a fight among them and to know the extent of competition .

Tolerance

1- In the user interface There may be a disruption in the Internet or some slowdown in the process as a result of poor communication or the large number of users.

2- In electronic parts Incorrect installation of electronic parts . Engine combustion as a result of wrong conduction or heat resulting from excessive work . A lot of electronic parts are contacted as a result of breakage .

3-In mechanical parts Incorrect installation of parts and structure . Damage to some parts as a result of engine heat and friction of parts . The presence of some dirt plankton between the parts .