TASK:

Make an autonomous wheeled robot that can be controlled by wireless means(wifi,bluetoothetc), scan RFID tags and collect boxes(bombs), on instructions sent through wifi.
The robot must defuse bombs by scanning the RFID tags in the arena and transport the defused bombs to the "Defused bombs region" in specified time.
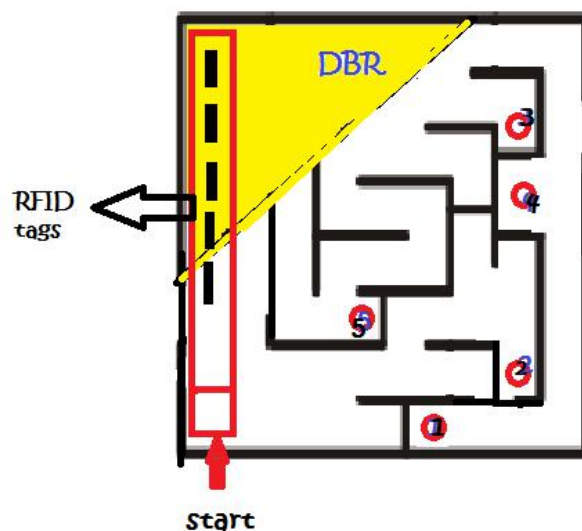Scores will be given according to activity.

ARENA:

The arena consists of three parts-the Department, the Defused bombs region and the Bomb maze.
The Department shall contain all the RFID tags,which when scanned defuse a bomb .
The bombs will be in the bomb maze ,which will be connected to the defused bombs region,the department .All the bombs are marked with their corresponding numbers.
The defused bombs must be taken to the Defused bomb region.

BOT SPECIFICATIONS:

Navigation of the bot in all the three parts of the arena must be controlled wirelessly.
The bot must have a RFID reader to scan the rfid tag.
The information regarding bomb defusal will be sent through wifi to the participant's server,that is the webpage on their laptop .This information will consist of numbers.Ex:"1","2 3"
The bot must be of a size small enough to move through the maze easily.

GAMEPLAY AND RULES:

The bot must start from the box indicated in the picture.Participant's server must get connected through wifi to our esp before the competition starts.
The bot must go to the department and scan a tag.When it gets scanned a numerical data will be sent to the participant through wifi.
There can be three types of instructions:

1. 'X'-Bomb numbered X is defused.Transport it to the DBR.
2. 'A X Y Z.....'-Bomb numbered A can be defused only if bombs numbered X,Y,Z... are defused.Come back and scan this tag again after all the indicated bombs were defused to get instruction 'A' ,then defuse the bomb A and take it to DBR.
3. 'X X'-bomb numbered X can be transported even after a another tag is scanned consecutively.

 If the instruction is of the first type,then the bot must go to the maze right after scanning and take the bomb to the DBR.If it scans another tag without transporting the defused bomb there will be a penalty .This wont be imposed for instruction of type 2 and 3 .
If an undefused(wrong) bomb is moved there shall be a negative score.
The bot must stop when the time is up.
There will be scores given for defusing the bomb and placing them in the DBR.

EVALUATION:

Scoring scheme will be as follows:
1. Score for defusing a bomb (after a type 1 instruction) =20
2. After type 2 instruction ('A X Y...),score for defusing bomb A =50, bombs X,Y...=10 for each.
3. Score for defusing a bomb (of a type 3 instruction) =10
4. Score for taking a bomb to DBR =50
5. penalty for lifting the wrong/undefused bomb=10
6. penalty for scanning 2 tags ,one right after the other,for a type 1 instruction =10
7. There will be penalty for damage to walls and the RFID tags.
8. No score for defusal or placement of a bomb after the time is up.

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Pragnya