Robots Arena

This project is provided by:

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Design Class Diagrams

Simulation

Air :Air

Arena : Arena

boolean Action(time)
sortRandomRobotsArray()

Point

_x :int

_y :int

zone :float

deviation :float

boolean Action(time)

Joint(point)

signalToDistance(singal)

Log

file File

addLine(line)

close()

Air

messages :[] Message

sendMessage()/static
Message getMessage(id)
boolean canSend(id)

Arena

_mat_robot_id :[][] float
_mat_zone :[][] float
Robots :Robot

booleab[4] getEnv(id)
getCurrentZone(id)
moveRobot(id,dir)

Message

```
_id_message :float
_id_source :float
_create_time :time
_sender_history :[]float
_version
_real_location :Point
_sender_estimated_location :Point
_mat_distance
_snn :[]float
bool equals(Message)
```

Robot

older (Message)

```
_id :int
_real_location
_estimated_location: Point
_can_move :boolean
_battery_status :int
_message_log : [] Message
_private_location_log :[] Point
_neighbors_loc : [] Point
_time :int
_current_zone :float
```

boolean doAction()
int[4] getEnv()
move(direction)
boolean SendNewMessage(Message)
message getMessage(message)
boolean forwardMessage (message)

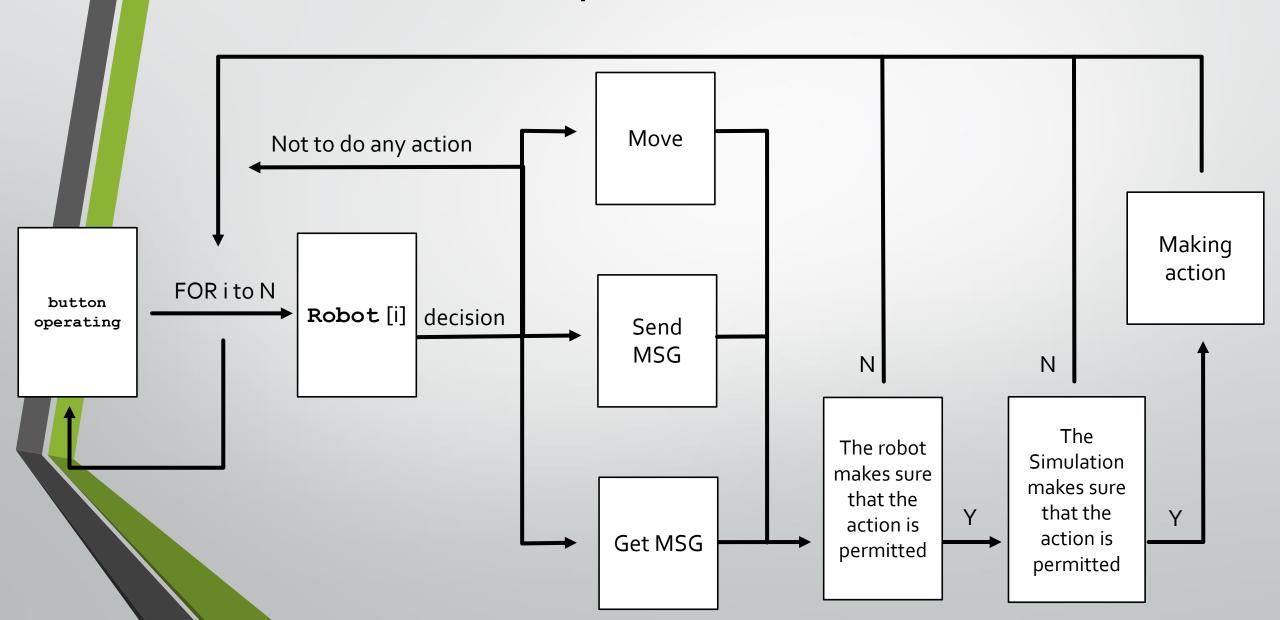
- Use Case: Do simulation to the software
- Actors: Simulation
- Purpose: correct simulation software
- <u>Description</u>: Receiving requests from the robot and responding accordingly.
 While preventing errors.

- Use Case: Management messages and signals
- Actors: Air
- Purpose: Distribution of messages correctly
- <u>Description</u>: Storing messages sent by robots, location, responsibility for preventing load, the distribution of posts according to criteria Lrobtim

- **Use Case**: Data analysis decision to the next step
- Actors: Robot
- Purpose: Survival robot performing the required actions, and save battery
- <u>Description</u>: Robot analyze all the information collected (robots neighbors, the environment and messages) to decide on the next action.

- <u>Use Case</u>: Analysis info from the messages
- Actors: Robot
- Purpose: The maximum extraction of information from messages
- <u>Description</u>: The robot analyzes the information received from a message (sender's location, intensity, zone, historic neighbors) and using the information in relation to appreciate the estimated_location and the distance to send any neighbors

Conceptual Model



Collaboration Diagrams

