

# OPEN TO ALL

## PROBLEM STATEMENT

### ALINA

BUILD AN AUTONOMOUS ROBOT THAT IS CAPABLE OF DETECTING LIGHT SOURCES OF SAME INTENSITY & CAN FOLLOW LIGHT, AT DIFFERENT DISTANCES, AND TURN OFF THE LIGHTS ONE BY ONE. THE ROBOT SHOULD DETECT THE LIGHT SOURCES, REACH OUT TO VICINITY OF INDIVIDUAL LIGHT SOURCES BY AVOIDING THE OBSTACLES IN THE ARENA.

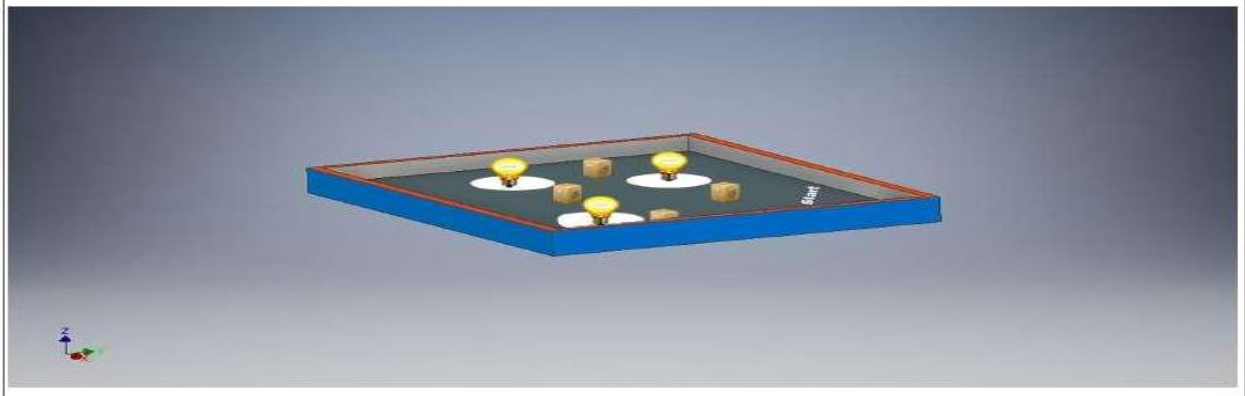
### TASK DESCRIPTION

THERE WILL BE 3 LIGHT SOURCES IN THE ARENA AT 3 DIFFERENT POSITIONS. ALSO THERE WILL BE OBSTACLES IN THE ARENA TO WHICH BOT HAS TO AVOID WHILE COMPLETING THE TASK, IT MEANS ROBOT MUST NOT MAKE ANY CONTACT OR BUMP WITH THE OBJECT. ROBOT HAS TO TURN OFF EACH LIGHT SOURCE ONE BY ONE REACHING OUT OF THEM SOMEWHERE NEAR AND BY INDICATING IN THE FORM OF L.E.D GLOW TO MARK THE DETECTION OF LIGHT SOURCE AND HENCE ASKING COORDINATOR TO TURN OFF THE LIGHT.

### ROBOT SPECIFICATION

ROBOT SHOULD BE FULLY AUTONOMOUS AND CAN BE FIT INTO 25CM X 25CM X 25CM BOX. ROBOT CAN HAVE ON-BOARD SUPPLY OR CAN PROVIDE EXTERNAL ADAPTER POWER SUPPLY. TEAM ROBONIXX WILL PROVIDE THEM WITH STANDARD 220 A.C SUPPLY.

### ARENA

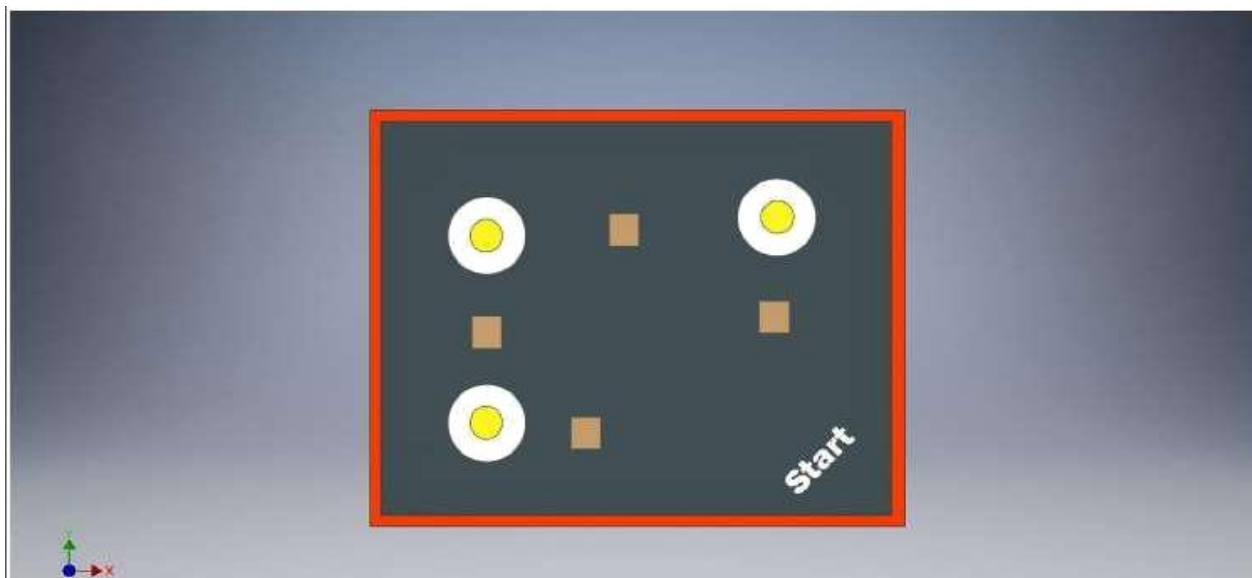


**1.LIGHT SOURCE:**BULBS WILL BE PROVIDED AS LIGHT SOURCES.ROBOT HAS TO APPROACH EACH LIGHT SOURCE ONE BY ONE FROM ANY DIRECTION.

**2.OBSTACLES:**THERE WILL BE 10CM\*10CM\*10CM THERMOCOL BLOCKS PROVIDED AS OBSTACLES & CAN BE PRESENT ANYWHERE IN THE ARENA.

**3.SPARK ZONE:**WHILE CIRCULAR REGION NEAR LIGHT SOURCE WILL BE TERMED AS SPARK ZONE.YOUR ROBOT HAS TO STOP IN THE SPARK ZONE AND HAVE TO GLOW AN L.E.D TO MARK THE DETECTION OF LIGHT SOURCE.IT IS THEREAFTER LIGHT SOURCE IN THE DETECTED SPARK ZONE WILL BE TURNED OFF BY THE SWITCH CONTROL OUTSIDE THE ARENA.YOUR ROBOT MUST NOT COLLIDE WITH THE LIGHT SOURCE.

## GAMEPLAY



- 1.ROBOT HAS TO START FROM 'START' POINT THAT WILL BE MARKED OVER ARENA ,PARTICIPANTS ARE FREE TO PUT THEIR ROBOT FACE IN THE DESIRED DIRECTION THEY WISH.
- 2.TIMER WILL START AS SOON AS ROBOT START MOVING.
- 3.ROBOT HAVE TO AVOID THE OBSTACLES WHILE APPROACHING A LIGHT SOURCE.ANY FORM OF BUMP OR CONTACT WILL FETCH THE TEAM WITH NEGATIVE POINTS.
- 4.AS SOON AS ROBOT REACH THE SPARK ZONE,ROBOT SHOULD STOP AND HAVE TO GLOW AN L.E.D TO MARK THE PRESENCE OF LIGHT SOURCE IN THE VICINITY.THEREAFTER ,LIGHT SOURCE WILL BE TURNED OFF FROM THE OUTSIDE CONTROL SWITCH.ROBOT MUST NOT COLLIDE WITH LIGHT SOURCE OTHERWISE IT WILL FETCH THEM NEGATIVE POINTS.
- 5.ROBOT WILL BE GIVEN A MAXIMUM OF 5 MINS. OF RUN FOR COMPLETING THE TASK.
- 6.A TEAM CAN GET TWO CHANCES OF THEIR BOT RUN,BEST OF TWO RUN WILL BE TAKEN INTO ACCOUNT.
- 7.IN ANY TIE SITUATION,MINIMUM TIME TAKEN BY THE BOT WILL BE CONSIDERED AS QUALIFIER.
- 8.THERE MIGHT BE SLIGHT CHANGE IN ARENA IS POSSIBLE.

## **SCORING**

1. TASK COMPLETION=200 POINTS
2. REACHING THE SPARK ZONE=100 POINTS
3. DETECTING EACH LIGHT SOURCE=100 POINTS
4. DETECTING OBSTACLES=100 POINTS
5. AVOIDING OBSTACLE=100 POINTS
6. ANY FORM OF BUMP OR COLLISION=100 POINTS

## **CONTACT**

**NABARUN BHADURI(PHONE NO. 8981774976)**

**MANEESHA KUMARI(PHONE NO.9564479242)**