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R-TIST (Robotics Society Of NIT Jalandhar)

Techniti 15

# GOOD NIGHT



## INTRODUCTION

Mr. Snorlax is going to sleep and is quite lazy to get up from his bed but is irritated by the high light intensity.

Offer him a nice sleep, switch off the lights and wish him a **Good Night**.

# PROBLEM STATEMENT

Build one autonomous robot that can differentiate between numbers of light source of similar intensity kept inside an isolated room (Arena) and turn each one off.

## TASK

The robot have to begin its run from a predefined position in a dark isolated room with the light sources kept in different direction. The robot has to decide its path by light detection and travel to maximum number of light sources and switch them off by colliding with lamps by the end of runtime.

1. There will be total of 5 fixed light source in the arena.
2. The total run time allotted is 5 minutes.

## ARENA

1. The arena will be of dimension 5mx4m.
2. The starting point will be located on one of the four corners.
3. The light sources will be placed at any random position in the arena.
4. The actual position of the light sources in arena will be disclosed just before the commencement of run.
5. The arena will be enclosed by walls on all sides. The walls will be covered by black cloth.

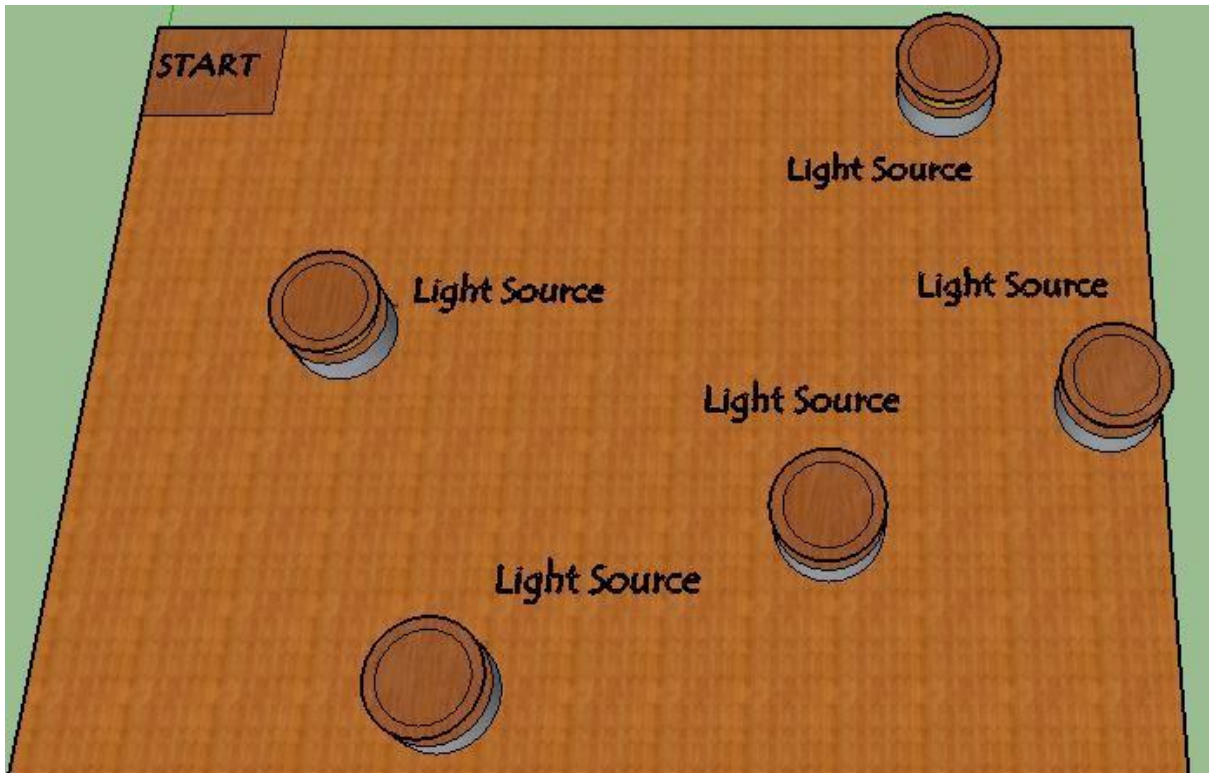


fig: Arena (Top view)

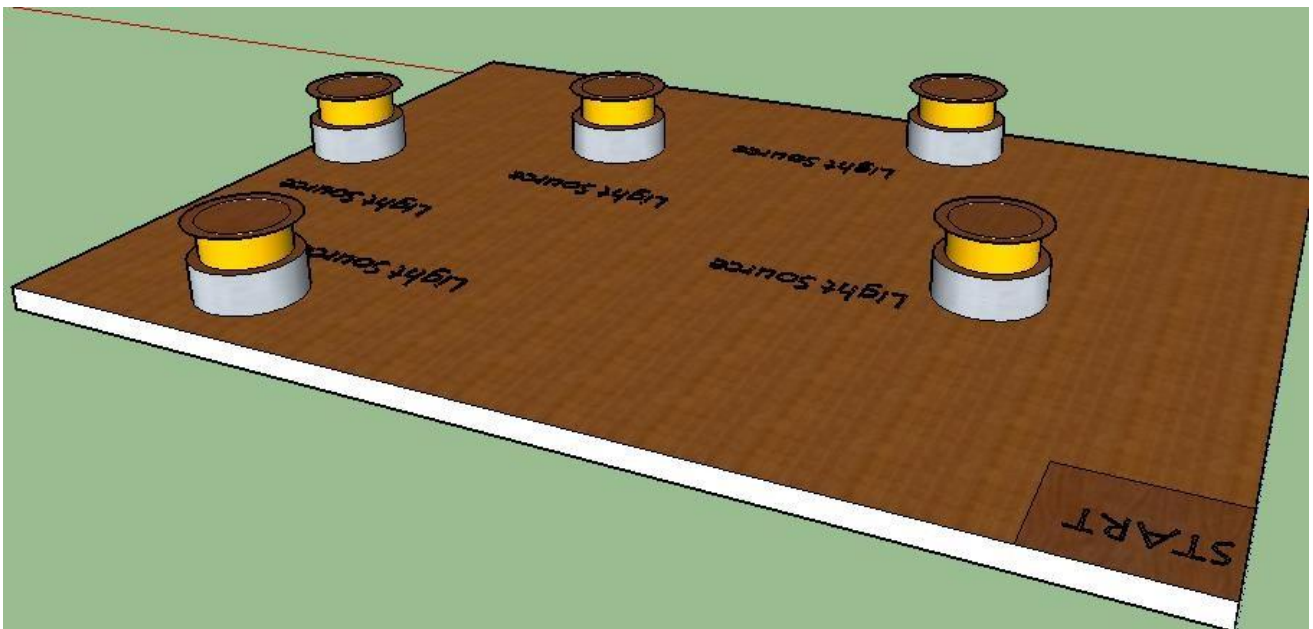


fig: Arena

## Light Sources:

1. Each light source will be cylindrical setup of height 25cm and diameter 25 cm
2. All Dimension have tolerance of 15%.
3. The rating of bulb to be used for all sources is 100 Watt,220 v.

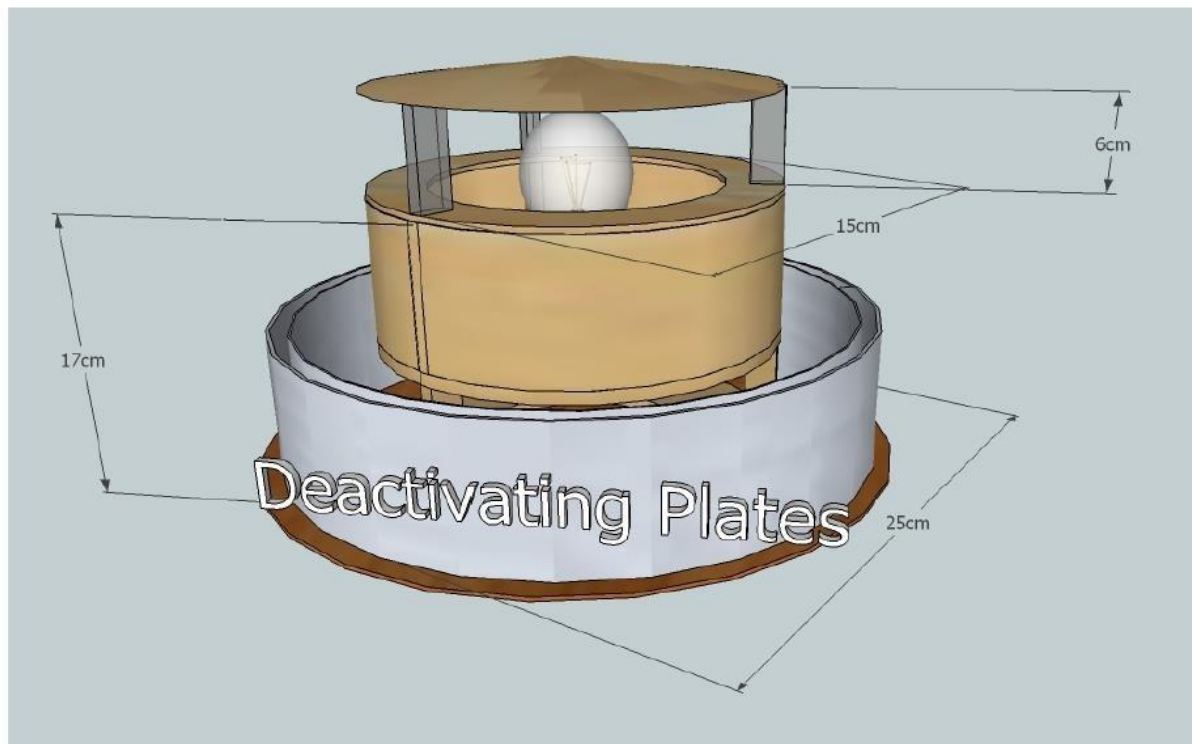


Fig: Light source (Stationary)

## Rules:

### Light Sources:

1. There would be stationary Source present in arena.
2. The robot has to reach light source and bump into the metal plates or the aluminium foil present around. This would deactivate the light source.

## Traversal:

1. The robot must avoid colliding with the already deactivated source as it traverses toward another light source. Collision with any deactivated source will lead to a penalty.
2. The participant is allowed to decide the initial orientation of their robot from starting point. They are not allowed to choose starting point.

## Robot Specifications

1. The robot must fit inside a cube of 30cm when measured.
2. The autonomous robot should be On-board processing robot.
3. LEGO kits or its spare part or pre made mechanical parts are not allowed..
4. The robot should not harm the arena in any way.

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