

Autonomus Follower/Attacker Robot for Moving Target

Team-5

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Problem Statement

- The aim of the project is to design an autonomous robot which will follow and shoot enemy robot in the battlefield
- Enemy robot can move randomly in the battlefield
- Enemy robot also has attacking capabilities

Requirement specification

- Continuously track movements of enemy robot to follow it
- Reach within specified range from enemy robot
- Shoot enemy robot with a laser

Final system

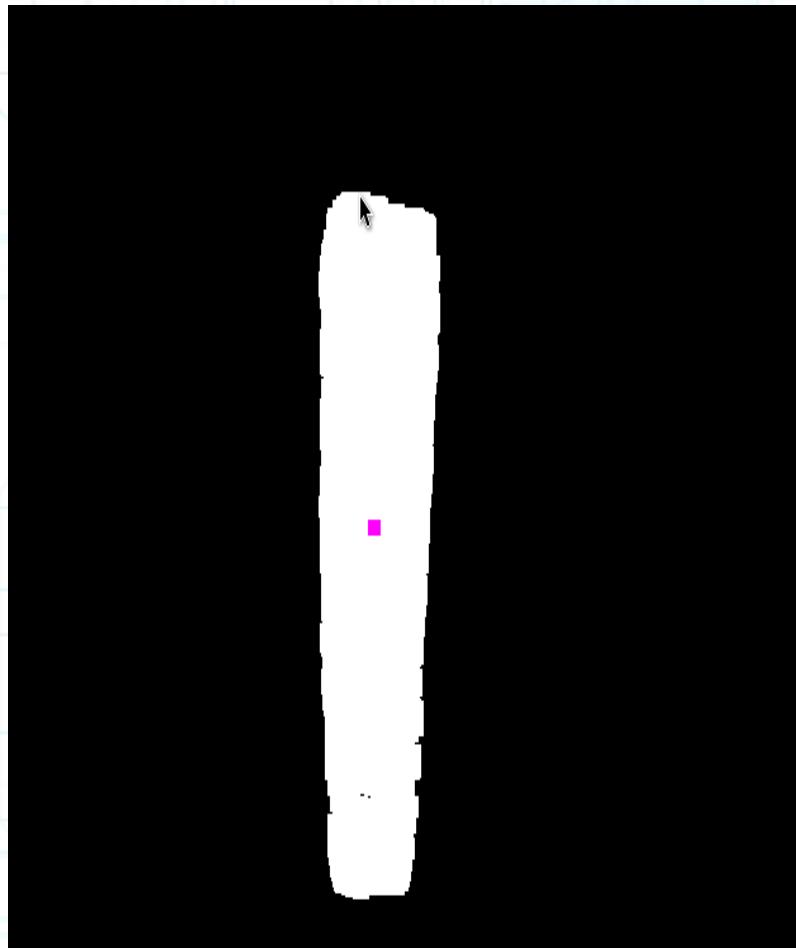
- Continuously track movements of enemy robot to follow it
- Reach within specified range from enemy robot
- Shoot enemy robot with a laser
- Maintains safe distance from enemy robot
- Obstacle detection and avoidance

Implementation

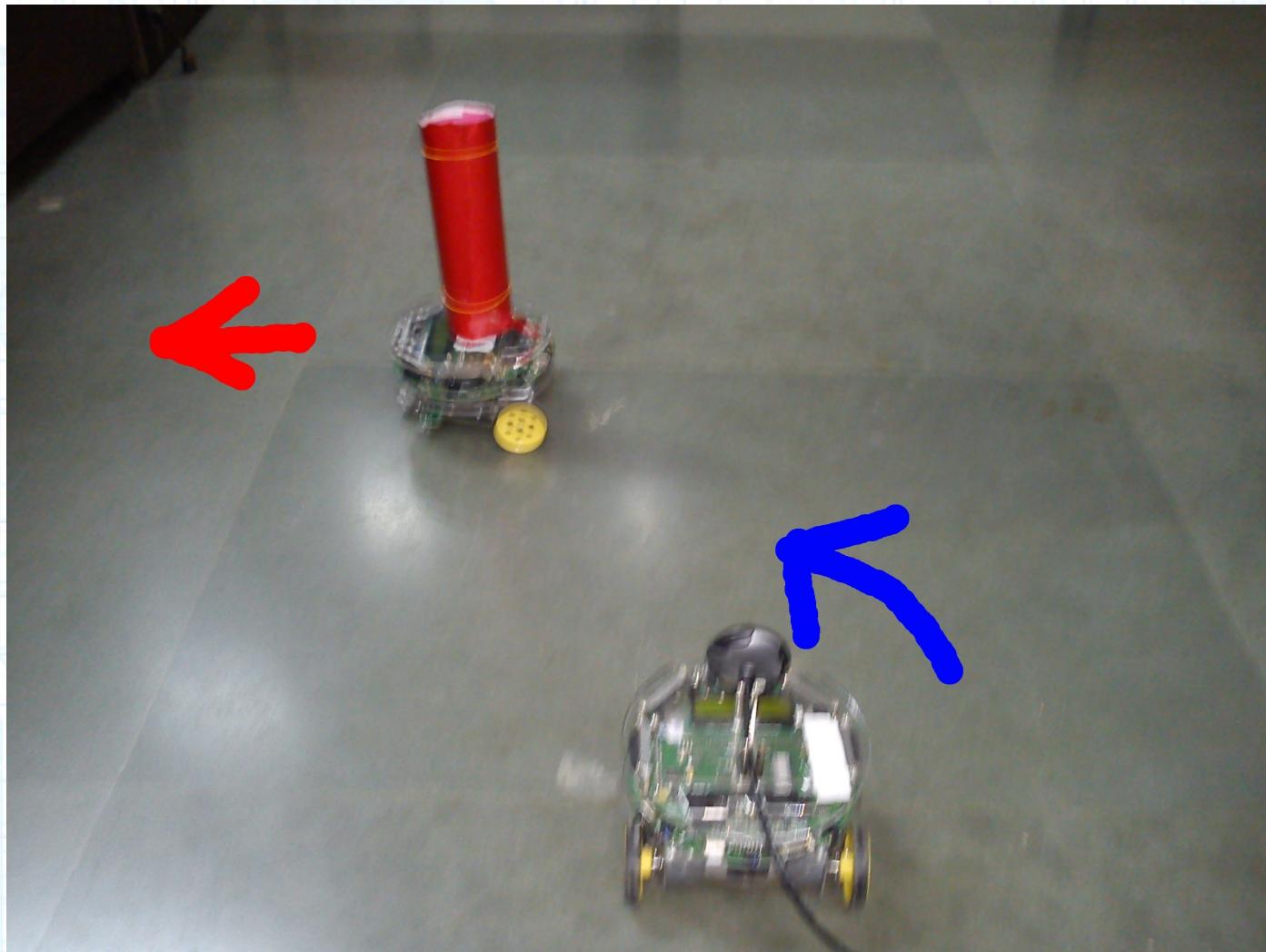
- 1) Determining Position
- 2) Decide Action
- 3) Send Command to Robot

1) Determining Position

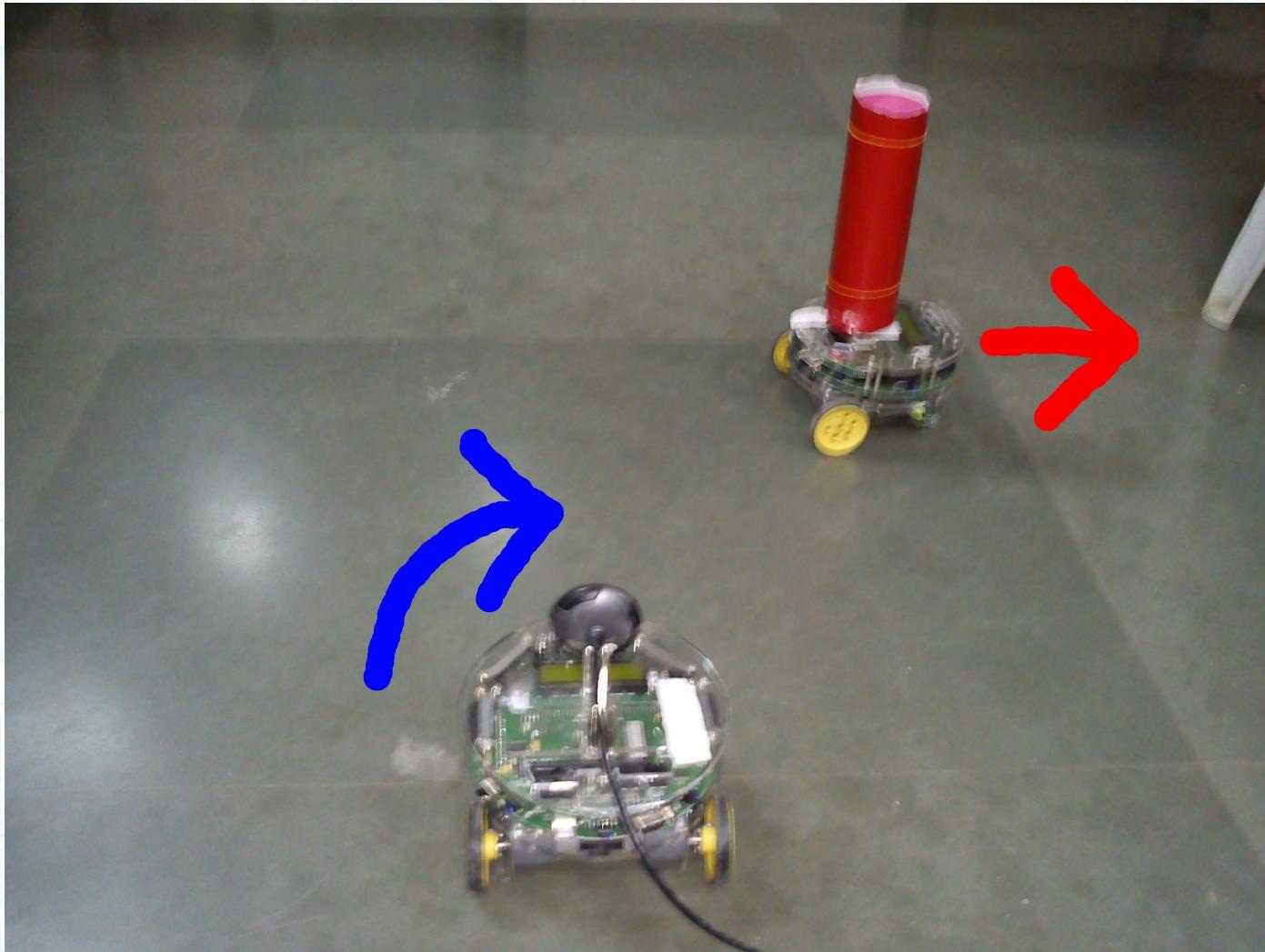
- Color Segmentation
- Find Centroid



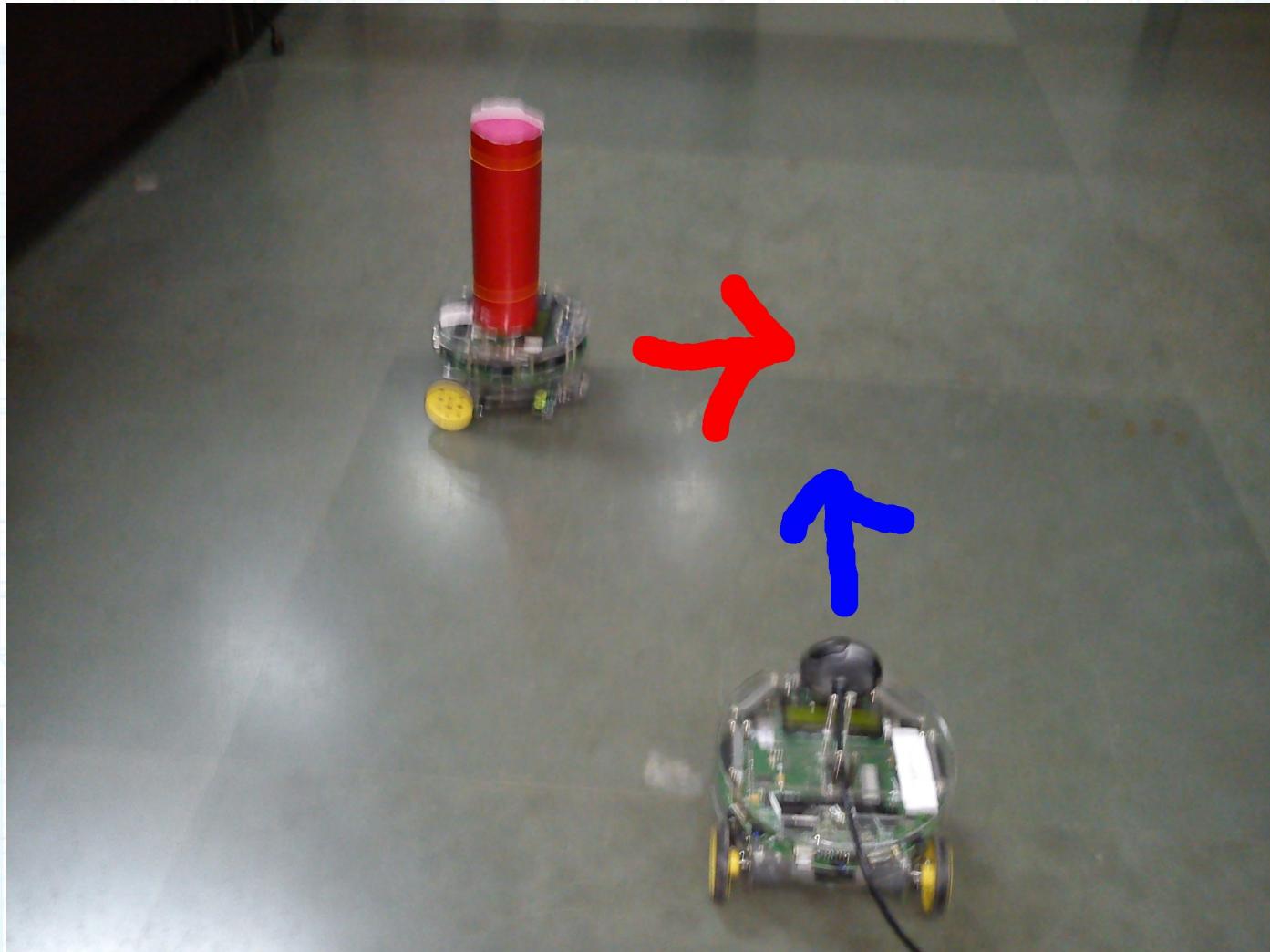
2) Decide Action : CASE 1



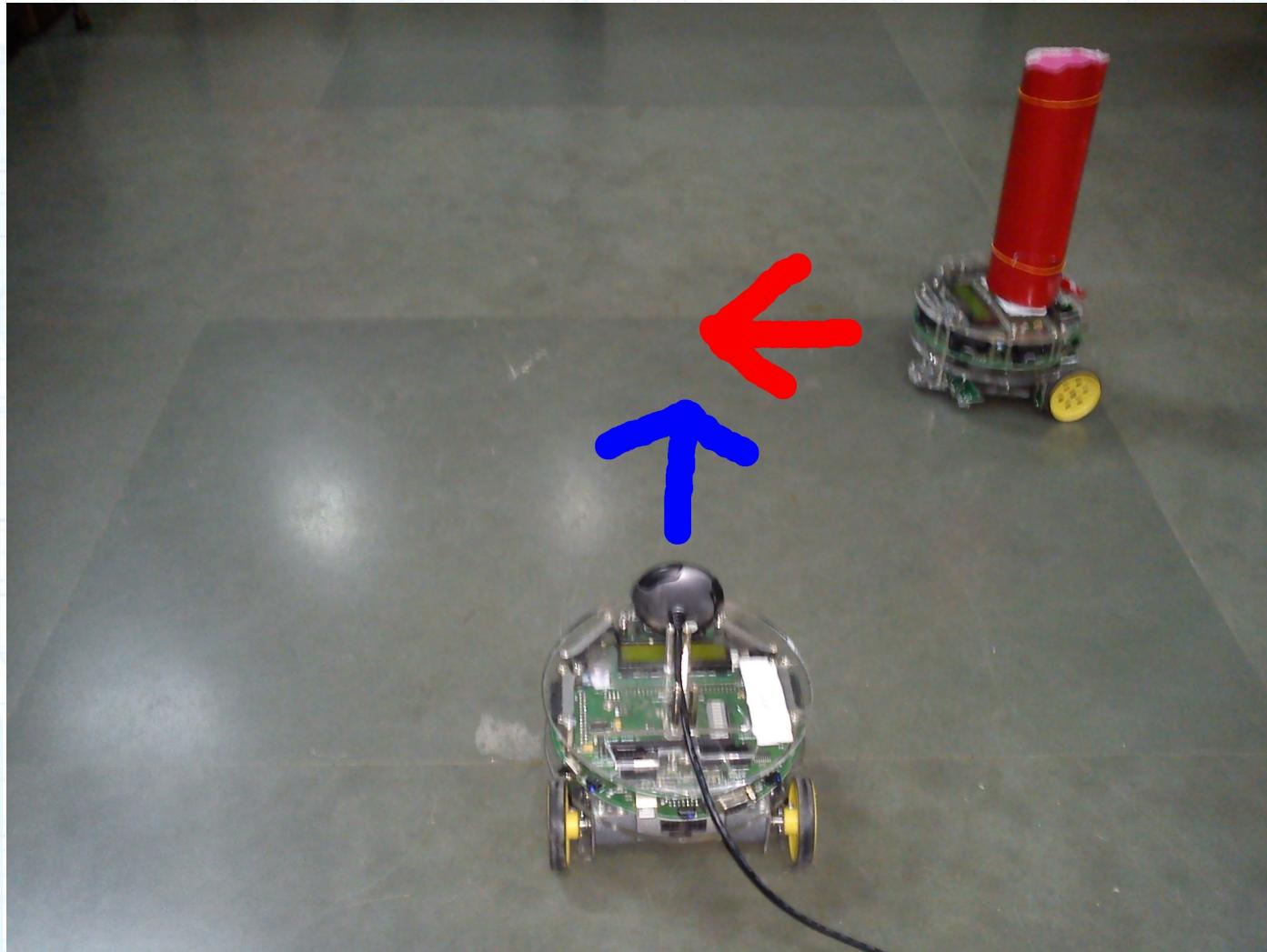
2) Decide Action : CASE 2



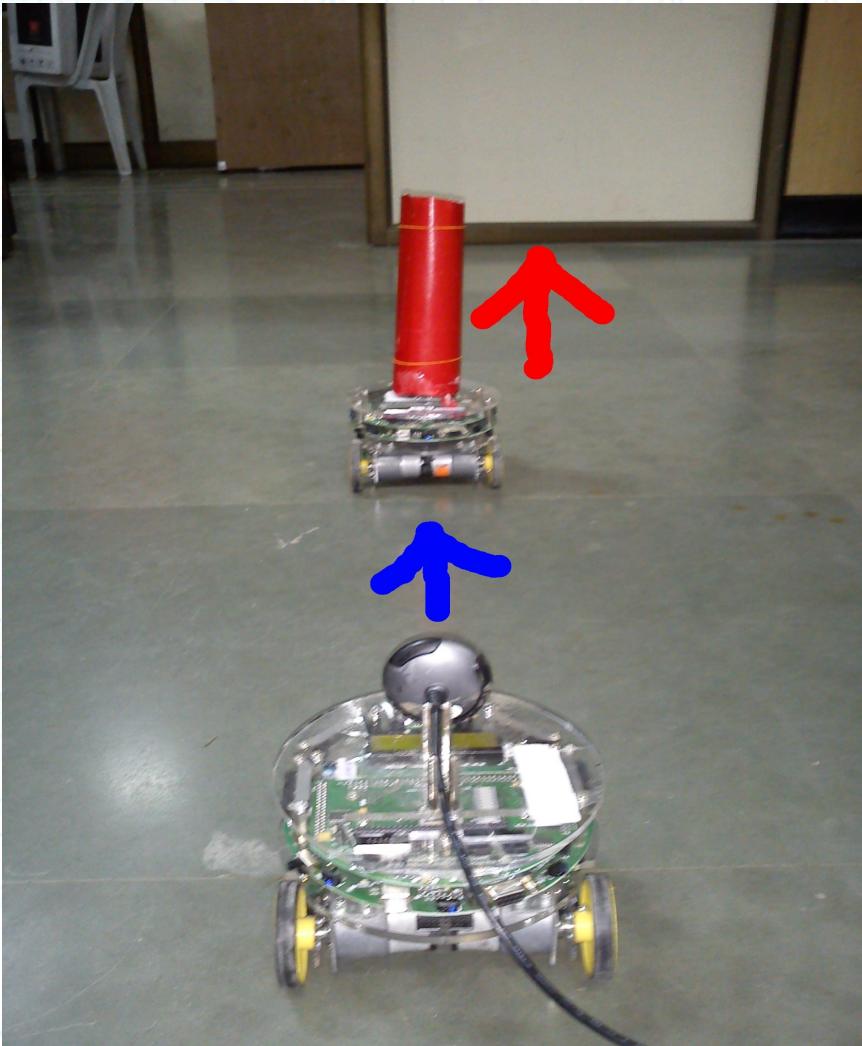
2) Decide Action : CASE 3



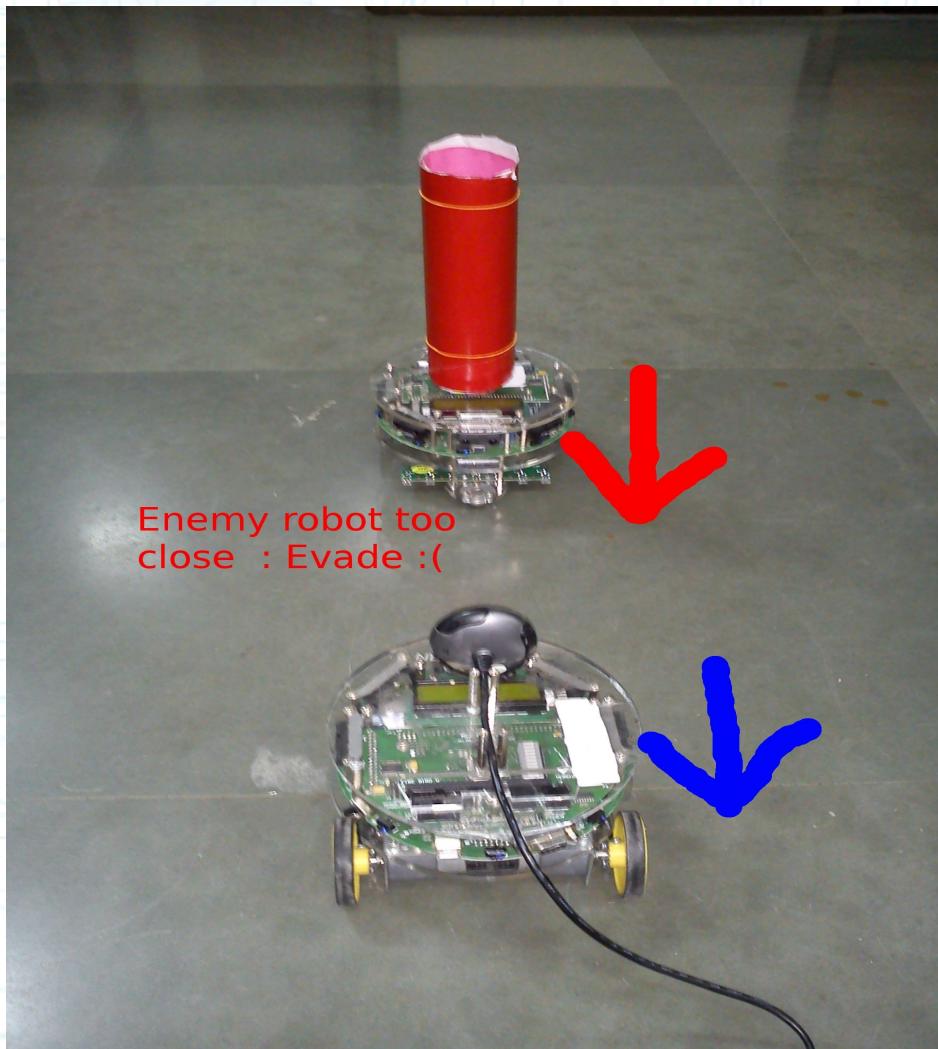
2) Decide Action : CASE 4



2) Decide Action : CASE 5



2) Decide Action : CASE 6



Problems Encountered

- Accurate color segmentation
- Serial communication in Linux

Future work

- Increase field of view of attacker robot
- Multiple targets



Thank You