

# Movement Control and Obstacle Avoidance of Hexapod (Group-2)

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# Problem Statement

- Design of estereel interface for motion of Hexapod
- Hexabot detects an obstacle with proximity sensors and moves accordingly to avoid it.
- *Requirements:*
  - *Proximity sensors*
  - *Hexapod*



# Final System

- We design an estereel interface for two levels of abstraction:
  - Bot level abstraction
  - Motor level abstraction



# Final System(contd..)

- We design an estereel interface for Variety of Input and output signals like
  - FRONT\_IR\_VALUE(integer)
  - FRONT\_LEFT\_SHARP\_VALUE
  - BUZZER\_ON
  - LCD\_DISPLAY\_1
  - MOTOR\_[ij](integer)
  - ROTATE\_RIGHT(integer)
  - SERVO\_CALIBARATION, etc.,



# Final System(contd..)

- We write an estereel code for hexabot to detect obstacles and move accordingly to avoid them in **bot level abstraction**.
- Another eseterel code for forward motion and reverse motion of hexabot in **motor level abstraction**.



# Challenges

- Uneven legs of Hexapod
- Size of obstacle
- Power
- Interruption of legs
- Distance of obstacle
- Controlling all motors



# Test Data

- Testing the hexapod with different sized obstacles.
- Testing with multiple obstacles
  - At different places
  - Adjacent to each other
- Designed an arena to test all possible motions of hexabot



# Future Scope

- Reusable Interface
- Can be used directly in places where bot needs to avoid obstacles automatically.





Thank You :)

