

# WASP Summer School

## Group 1

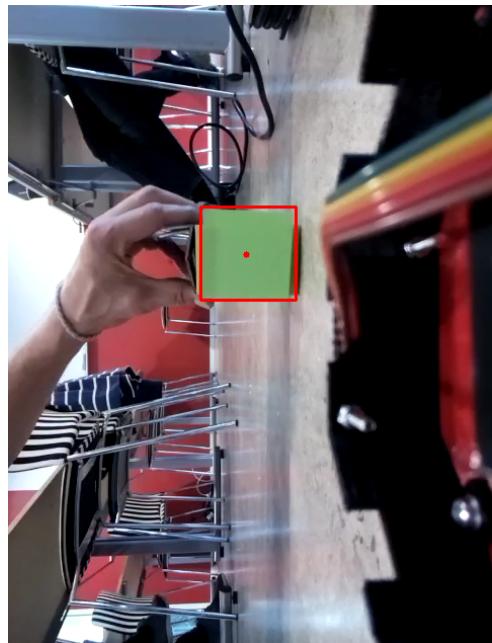
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# Highlights

## Color tracker using cv2

Rgb -> hsv

- Used blur, erode and dilate to remove small artefacts
- Use contour to find biggest object
- Used momentum to find center of the object
- Histogram improvement using CLAHE
- Color tracker works very well!



## Steering control:

- Used Center point of object to find error
- Improved steering algorithm, not so sensitive in middle of screen
- Keeps the target within sight!

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## Speed control:

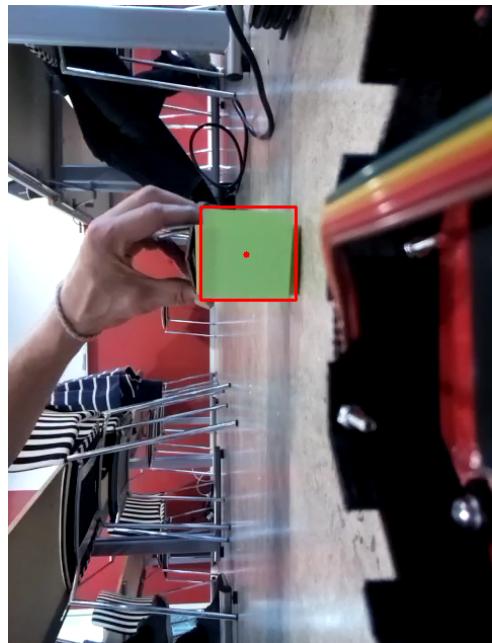
- Based on size of object
- PD controller used

center

# Highlights 2

## Object detection:

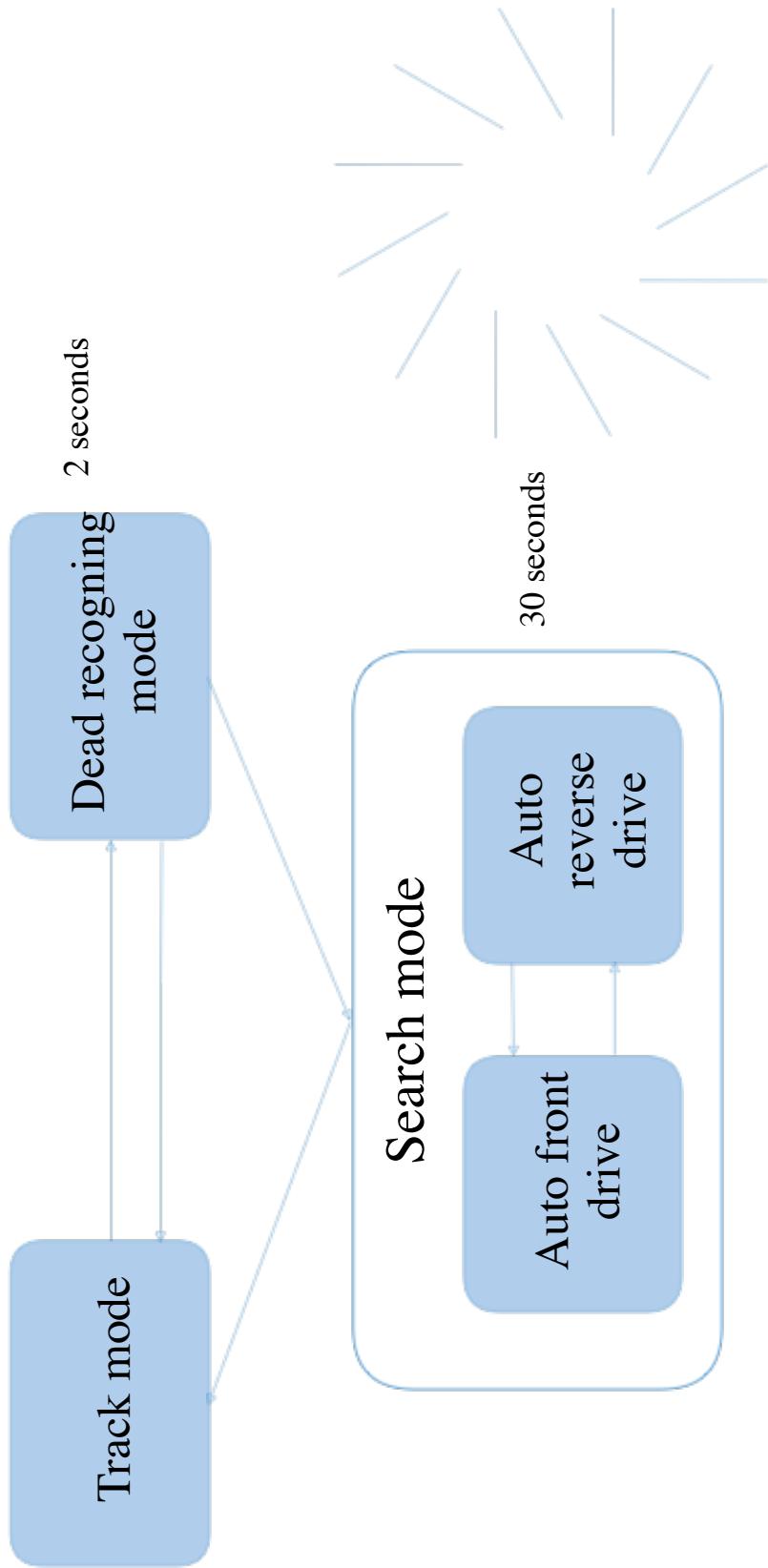
- Infra red was used to not steer into objects in parallel width car
- Ultra sonic was used to avoid collision
- Improved collision detection (not crashing now)
- Slow speed when close to objects
- **Almost never crashes!**



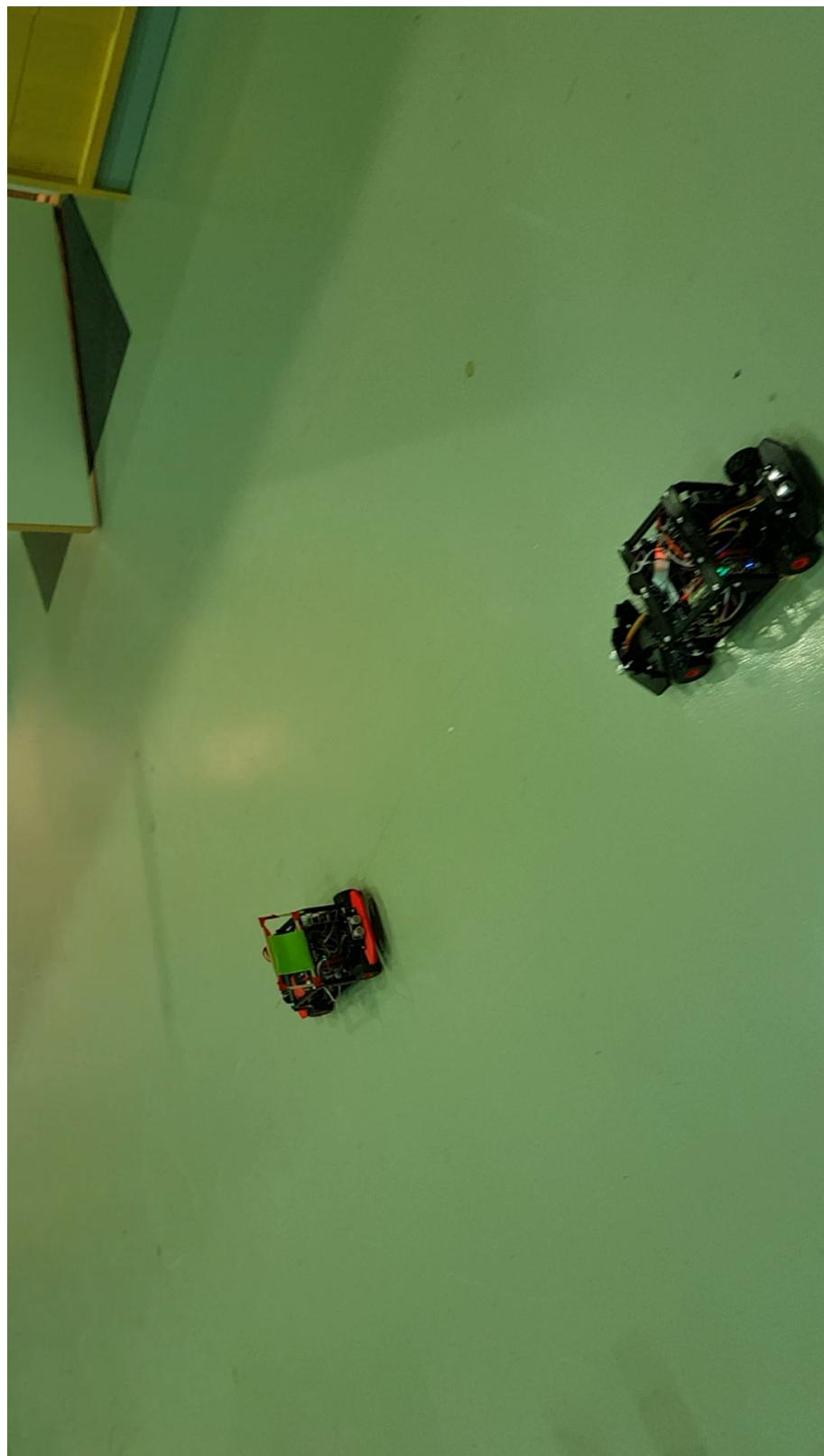
## Extra:

- Keeps object in sight when moving backward
- Search for lost target, Keeps moving in the direction where the target was seen last. Stops if searching to long
- New drive modes: track/dead recognizing/search
- Increased speed of car
- **Dead recognizing mode and search mode helps to find the target when lost!**

# Drive modes



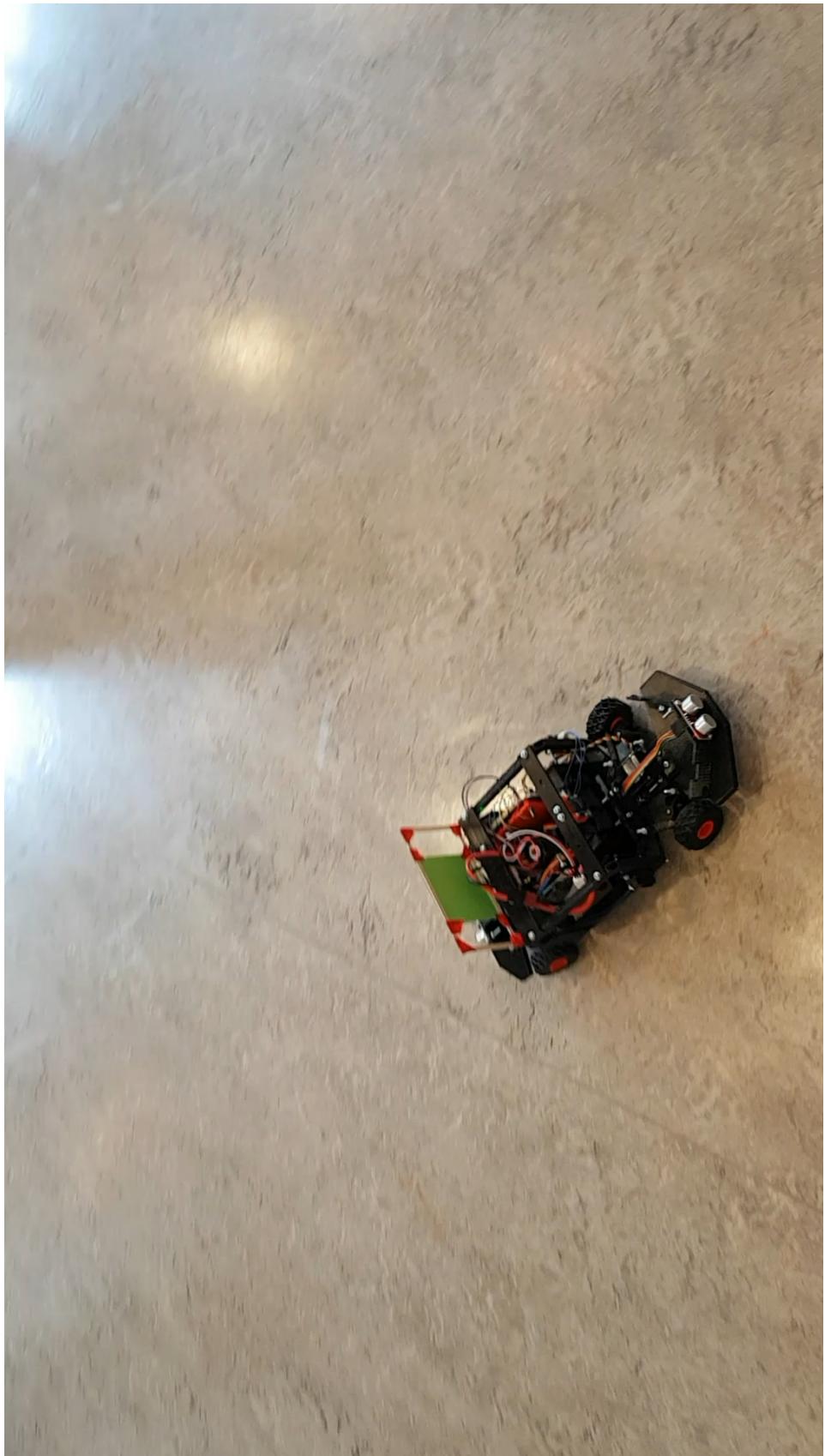
# Demo in the garage



# Way forward

- Increase speed
- Tune speed PD controller
- Bypass car mode if car in front to slow or stopped
- Add commands/gestures to the car using the camera and hand or signs

Demo- search mode, find car



Demo day 1

