gofi
the golfball finder

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I ONCE WAS LOST, BUT NOW I'M FOUND!

Problem and Solution

- Millions of golf balls are lost every year around the world

- Using AR.drones, search for lost golf balls in a bounded golf course

- Autonomously fly in random directions and land if a golf ball is found

Implementation

Search
- Fly straight in random direction
- Read image stream from bottom camera
- Filter images

Ball recognition
- Preprocess
- Detect golf balls using openCV

Line Recognition
- Preprocess
- Detect bi-colored line using openCV
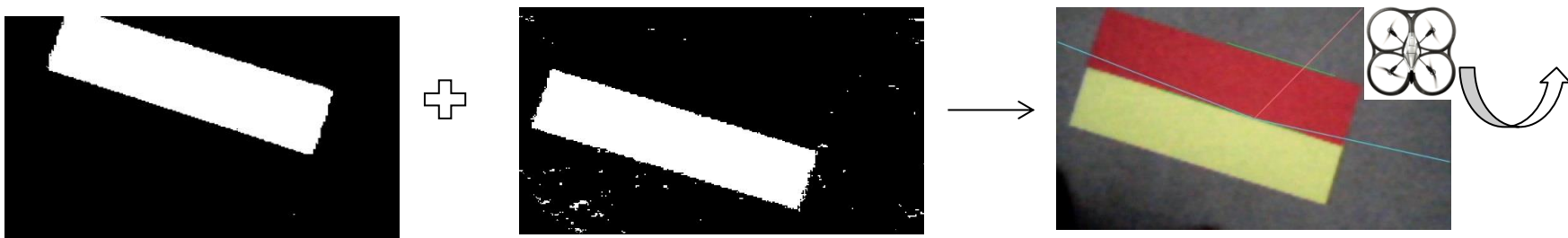- Calculate angles to turn the drone

Action
- If a golf ball is found, then land the drone
- If a line is found, then change the direction
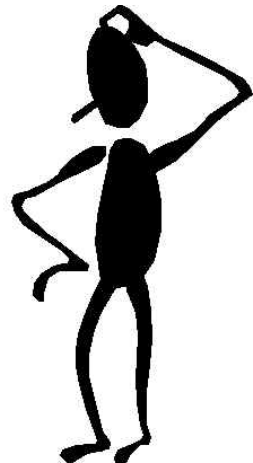
Approach

- Ball detection

- Line detection

Video demonstration

Problems Faced in Implementation

- Frequent connection failure

- Confined space leading to unpredictable behaviour
    - Too many lines detected due to different objects
    - Problems with landing
    - Problems with obstacles

- Color detection problems
    - Green line appears yellowish in camera images

Future work

- Further advancements possible are **obstacle detection** for detection of balls in forests or terrains

- Attach **mechanical claws** to the drone to pick up the golf balls

- Speed golf

Thank you for your attention!