

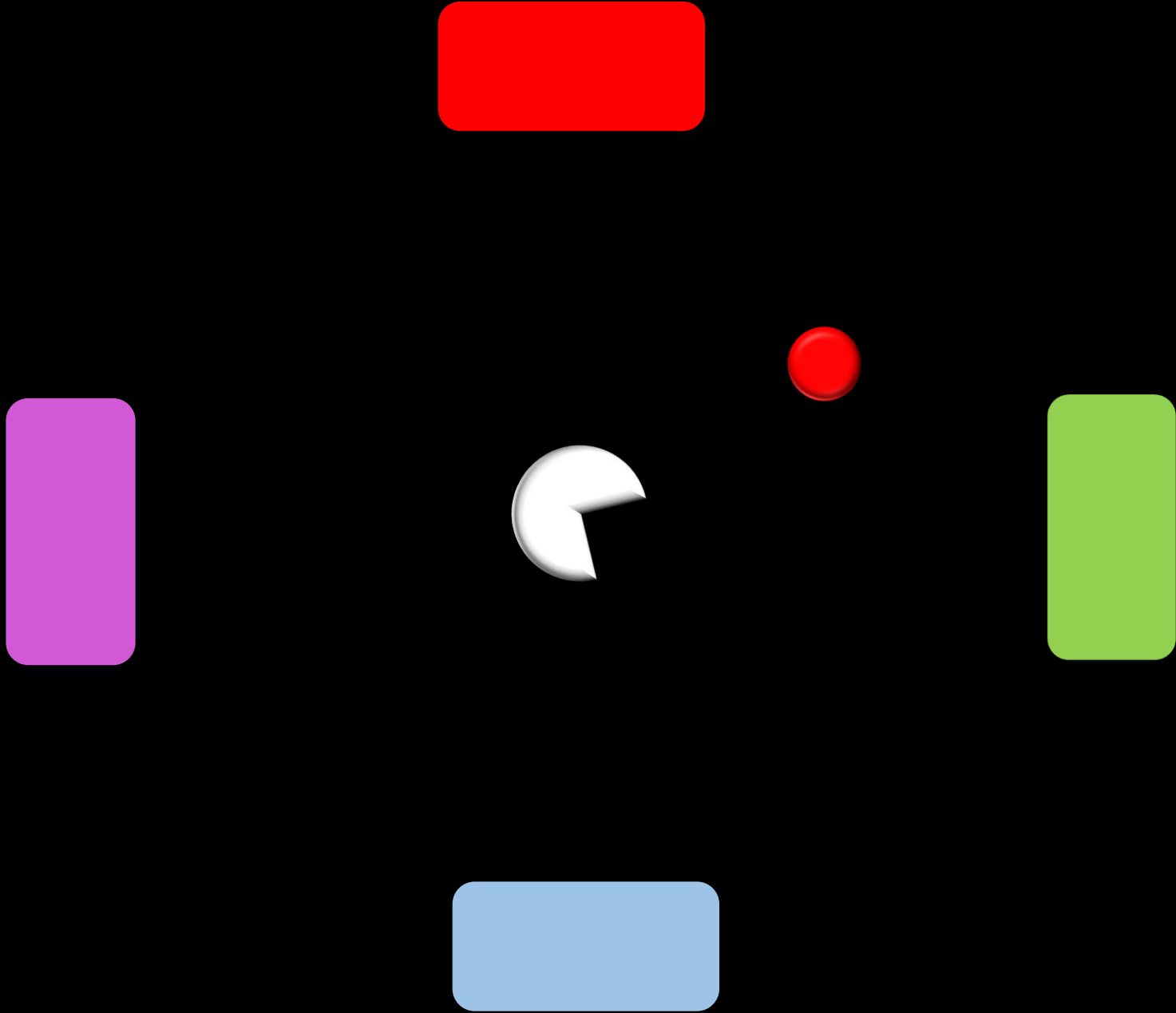
Arranger

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TeamLHS

CSE291 Fall 2016

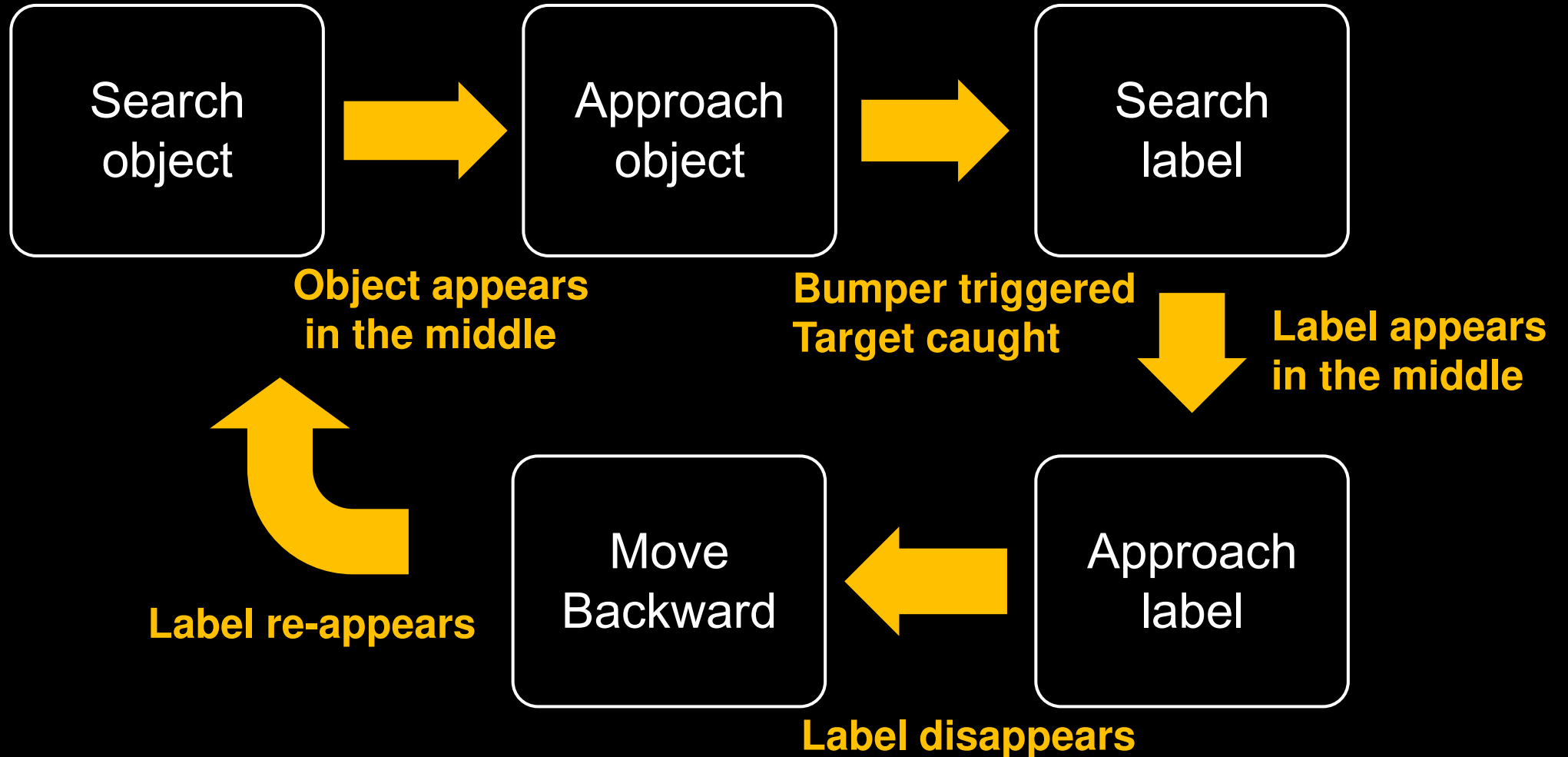
Task



Technical approach

1. Color detection
 - Spot object and label
2. Angle correction
 - Turn to center the target in the middle of images
3. Light bumper sensing
 - Know when target is hit

Process



Conclusion

Problems encountered and what we can improve

Problem 1

Robots can't go straight by telling it go straight due to bad odometer.

Solution

Correct direction along the way with camera vision.

Problem 2

There may be frames color detection fails.

Solution

Add a counter, if the failure appears for too many frames, then we are sure target is gone.

Problem 3

Robot cannot recognize objects that have been processed.

Workaround

Assume only one object for each color.

Improvement

- Avoid obstacles in the way
- Sort objects according to other features, e.g. shapes
- Recognize objects that have been processed

Conclusion

--sorting robot

Problem 1

Not going straight, angles are not accurate

Originally use odometry to determine the position and angle to locate labels

Solution 1

Change to locate the label using color detection

Problem 2

There may be a frame we can't detect the object, so wrong decisions will be made

Solution 2

We add a counter, if the same condition appears for several frames, then we make the next decision

Problem 3

Robot cannot recognize objects that have been processed

Solution 3

We assume that there is only one object for each color.
Disable that color after finishing the object with that color.

Improvement

- Avoid obstacle in the way
- Sort objects according to their shapes
- Recognize objects that have been processed

Conclusion

Problems encountered and what we can improve

Problem 1

Robots can't go straight by telling it go straight due to bad odometer.

Solution

Correct direction along the way with camera vision.

Problem 2

There may be frames color detection fails.

Solution

Add a counter to avoid false decisions due to frame failure

Problem 3

Robot cannot recognize objects that have been processed.

Workaround

Assume only one object for each color.

Future Works

- Avoid obstacles in the way
- Sort objects according to other features, e.g. shapes
- Identify objects that have been processed