

TO DO LIST

Turning without turn_in_place function

EXPLORATION:

- Merge the codes - done
- Debug - done
- Experimentally evaluate your approach in a suitable set of environments and critically analyse the performance. -done

NAVIGATION:

- Obstacle avoidance. - done
- Path planning on map and basic position tracking via dead reckoning - done
- IMAGE_DIFF_THRESHOLD=8 and DISTANCE_PER_MOVE=100 could be tuned better per environment Calibration fixes. Possibly not necessary due to Cozmo inconsistency.
- Interactive text menu that has diagonal, rectilinear and calibration modes - done
- Test systematically: no obstacles, single obstacle, maze, scattered obstacles
Measure success rate, path efficiency, time to target across test environments.
(Experimentally evaluate the navigation behaviour for a suitable set of map environments).
-done
- Wheel speed changes with distance -done
- Low level rotation -done
- Fix graphic so it connects at the beginning -done
- Integrating both methods -done
- Checking the real position -done

LOCALISATION:

- Need Data - done
- Positional inference with wall markers instead of cubes - done
- Currently the system only calibrates if it can see multiple landmarks at once. But the system should be able to update its position by using detections of single landmarks that are seen separately during its rotation. - done
- Create plots and other visualisations -done
- Critically evaluate strengths and weaknesses of the proposed method and experimentally assess its accuracy. -done

- Learn the sensors' error profiles so you can refine your probabilistic observations and get better pose estimates. -done
- Get your objects parameterised. Then decide on a good aspect ratio for your tracking. Then show your spatial plotting and make it update with each move or detection. Need matplotlib display. -done

SLAM:

- Some type of occupancy mapping + filtered IQR localisation or others like Monte Carlo, Kalman or Markov -done

List as of the sixth:

- Explain the rotation mechanism in the re-heading section of Navigation - done
- Add the formula for calculating the new position after movement - done
- Discuss correlation in the same environment and different environments for navigation evaluation -done
- Evaluate the performance of avoidance of walls in navigation -done
- Evaluate the performance of rotation in navigation -done
- Complete the key findings for wall separation impact and distance performance in localisation evaluation -done
- Add recommendations section for localisation evaluation -done
- Complete the SLAM section implementation - done
- Visual of it working -done
- Complete the SLAM section evaluation - done
- Conclusion -done