

Task 9: Autonomous Steering 2

Lab Coding

Follow Path

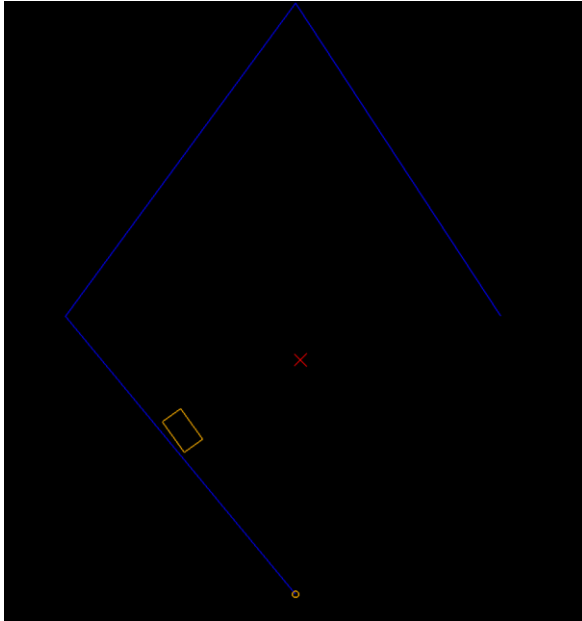


Figure 1: The result of the follow_path code being implemented; the agent is on the last section of the path and is slowing down to arrive at the end point.

```
def follow_path(self):
    if self.path.current_pt() is self.path.end_pt():
        return self.arrive(self.path.current_pt(), "slow")
    else:
        dist = self.distance(self.path.current_pt())
        if self.distance(self.path.current_pt()) < self.waypoint_threshold:
            self.path.inc_current_pt()

        if self.distance(self.path.current_pt()) < self.waypoint_threshold * 3:
            return self.arrive(self.path.current_pt(), "slow")
        else:
            return self.seek(self.path.current_pt())
```

Figure 2: The implemented follow_path code, following the suggested logic. I also added a check that if the agent is approaching the current waypoint, it should slow down a bit

```
elif symbol == KEY.R:
    for agent in world.agents:
        agent.randomise_path()
```

Figure 3: The code in main.py for resetting the paths of the agents.

Wander

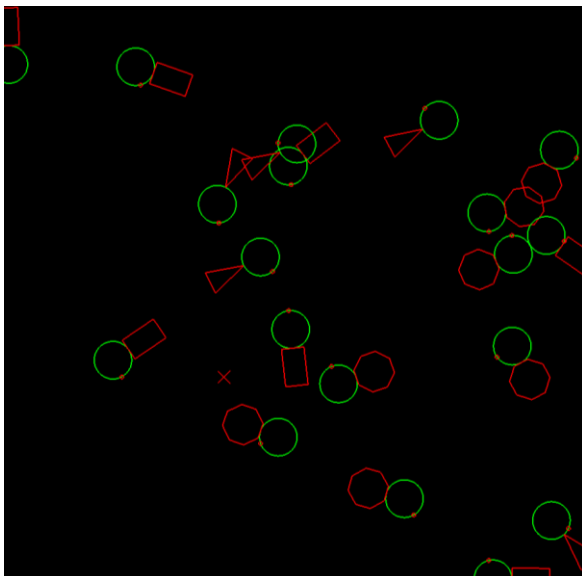


Figure 4: The result of the wander code being implemented.

```
# check for limits of new velocity
if self.mode == 'wander' or self.wander_while_fleeing:
    self.vel.truncate(self.max_speed / 5)
    self.wander_while_fleeing = False
else:
    self.vel.truncate(self.max_speed)
```

Figure 5: I tweaked the code in the update method to impose a stricter speed limit on the wandering agents; having them racing across the screen didn't feel right, nor did it demonstrate the wander behaviour very well.

```
def flee(self, hunter_pos, delta):
    ''' move away from hunter position '''
    panic_range = 100

    if self.distance(hunter_pos) > panic_range:
        return self.wander(delta)

    desired_vel = (self.pos - hunter_pos).normalise() * self.max_speed
    return (desired_vel - self.vel)
```

Figure 6: The flee method being tweaked so that wander is the default behaviour for fleeing agents whose hunter isn't within their panic range.