**Weekly Report (WEEK 4)**

**Company Name:** OJO **26/10/2017**

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This week, we had only one meeting; however, we always stayed in touch with our group on an instant messaging application. On these conversations, we decided to identify the problems of the projects in our meeting. When we met, we brainstormed and tried to think about all the potential problems that we may need to face in future. We also tried to come up with different solutions, as many as possible. While doing these, we mainly focused on the convoy project.

In our meeting we wanted to come up with a tentative solution and wanted to avoid coming up with specific solutions. We did this to save ourselves from limiting our vision. At first we broke down the problem into submodules andattached them individually.

**Breakdown of Convoy Project**

**Every robot should maintain certain speed and distance from other robot.**

**Leading Robot**

* Leading robot should determine the path (on command/pre-defined path/autonomous).
* Turning (left/right) of leading robot.
* Controlling leading robot (how would we control it).
* Some kind of indicator on leading robot that allows other robots to judge the movement of the leading robot.

**Middle Robot(s)**

* Following the leading robot or the robot in front.
* Leaving the convoy when commanded.
* If the middle robot is leaving, it must indicate (flag) and leave in a certain pattern.
* If the middle robot is leaving, it must identify last robot (find a path) and go behind the last robot and indicate it is the last robot.

**Last Robot**

* Following the front robot.
* Indicating that it is the last robot (flag).
* If any of the middle robots come to the last position, the last robot (initial) must identify it and change the flag and behave as middle robot.

**Robot Behind Leaving Robot**

When a middle robot leaves the robot behind leaving robot should,

* Following the next front robot, consider also the option when convoy is turning.

**Non-Leaving robots**

When a middle robot leaves, the rest of the robots (except the leading robot maybe) should be able to

* Identifying that a robot is leaving and maintain the distance and speed so that convoy does not break the pattern.

Also we wrote down the questions to clear our ambiguities which we will discuss with our advisor in the next meeting,

* What does direct communication mean? What kind of flag usage counts as a way of directly communicating or not?
* Does leaving or rejoining the convoy occur on nonlinear paths?

We then proposed some solutions to each problem and discussed the effectiveness of the proposed solution. We also discussed some non-ideal situations that the robots might have to face. For example, we discussed how on receiving the command to leave, will the robots behave if the leading robot was also turning. We discussed collision avoidance which might occur when the robot leaves the line amoungst other things.