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**Weekly Report (WEEK 10)**

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**Standards Finalized**

This week, we have also finalized the standards for the project. Our group presented a better idea for leaving the flag signal, which also turned out to be useful as the visibility marker. Also another method for detecting the last robot was introduced by our group. Therefore, ammendments were made for visibility marker. Previously a green colored rectangle was going to be used as a follow marker but this is now changed to seven segment display which is placed rectangularly. This seven segment display unit also serves the purpose to give the leaving the flag signal. It lights on and displays figure 8 (horizontally) when the robot is leaving. Also we decided that the leaving robot should be at least 15 cm away from the side of the robots in the convoy when it gets out of convoy. And the leaving robot should leave within 15s from the convoy after the leave signal is given. In addition to these, for the last robot signal we decided to use laser and solar panel on both left side and the right of the robot.

**Feedback Control Testing**

We made some necessary improvements to the feedback code and tested it on the robot. The robot library written previously was just simple proportional control we added some signal conditioning to the controller output and made the motor move just in the forward direction. We felt that friction can sufficiently handle the required deceleration and reverse direction force is not required. For testing we just focused on distance testing. The objective was to maintain a certain distance from the next robot. During testing we found out that the system did not work as required. The robot is supposed to move forward when the distance between the next robot becomes greater than the the desired value, however our controller was working in the opposite way. It was moving forward when the required distance became less than the desired value. We soon realised the problem. The issue was that we had implemented a reverse action controller instead of the required direct controller. Traditionally when we learned control theory we have done so many examples on reverse action processes that we defaulted to it without thinking much about it. As we have now identified the issue we plan to change the code accordingly and test it out.