

TEAM 8

PROJECT 1 SENSING AND MOVEMENT

TEAM ORGANIZATION EVALUATION AND PLANS.

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Objective.

We are required to submit a document evaluating our team based on how well our team organization worked and our future plans depending the conclusion derived from this evaluation.

Overall appraisal.

Our aim, with the assigned team organization and task allocation, was to get the optimal performance from each of our team members' potential at this level and that each of us would learn something about both the aspects (hardware and software) of the Robot, which we successfully accomplished. Since all of us were entirely new to Robotics we had to do lot of research but with two of our team-members under the weather, the deadlines of the sub-tasks were influenced resulting in the performance witnessed during demonstration.

Right after the class presentation our team got together to determine technical problems why the robot did not complete its full three cycles. We found out that the problems were inevitably caused by the fact that robot could not go in a straight line. We tested our assumption by adjusting the robot's path externally after every 18 feet. The testing showed that the robot is perfectly able to find a square, adjust itself to the black tape, and continue to go straight finding the next square indefinitely. Our software, on the other hand was built solemnly on the assumption that the robot will cross the black tape at some point. However this assumption has been violated once we change the hardware design several days prior to the class demonstration. At this point the robot was off from a straight line by about 1 foot very 6 feet of traveling. Knowing this problem, the software designer placed the *go_back()* function that would make the robot return to the "missed" square. That solution did not solve the problem entirely resulting the digression of path after the third square.

However, we think our team fared moderately because of some loopholes in our team organization. There was some communication gap among the team members about the progress

of the project and individual progress, which slowed down the pace of the project. Again, the lack of proper coordination between the hardware and software designs made the business hectic and unsuccessful towards the end of the project.

Modifications needed?

Of course, since we did not achieve complete successful we definitely need certain modifications in our approach for the upcoming project. During our recent team meeting, we were able to point out things we think affected our overall performance despite of our team-members being more capable.

- ✓ First and foremost, the idea of making one person responsible for the entire major sub-task did not work well. Unanimously, we agree that we did not have good back-up plan, i.e. since one person was responsible for entire sub-task and if that person at that particular time, for some not foreseeable reason, could not finish the work, our performance ought to be affected. For the next project, we plan to have two people on each of the sub-tasks and connecting members with different sub-tasks i.e. one person working for more than a sub-task and a sub-task having more than one person. We may not change the division of tasks but allocation of tasks.
- ✓ We need more group meetings to exchange thoughts and find a workable solution. We definitely communicated through e-mails during our project but e-mails tend to be brief and did not facilitate well when it came to help other team-members with their doubts. Also, meetings would be helpful in tracking each of the sub-task progress and solve any developing problem that could be threat to our overall performance.
- ✓ And last but very important, we realize that changing hardware design at the very last minute intrinsically damages the performance. Every other day we changed the hardware design (till the very last day) because our robot did not go straight. In the upcoming project, we have decided first to pin-point the crucial activities (for example, traveling straight and making 90^o turn for this project) of the robot and once we obtain the performance precision for those crucial activities we would “freeze” the hardware design and will not change unless it is exceptionally compulsory.

Final word.

Even though we were not completely successful with our approach in demonstration, we would say that we learned basic fundamentals of working as a group as mentioned above, and also incrementing our overall knowledge about the hardware of the robot and the Interactive C.