MECH0064 MSc Group Design Project 23/24

Individual Report

Part A. Team Collaborative Effectiveness

Although there have been some challenges in collaboration within the team during certain time periods, the team as a whole effectively engaged in cooperative efforts, which will be elucidated through two illustrative examples.

Firstly, we executed effective time management and work package distribution for the project, establishing a corresponding workflow. In terms of time management, we initiated the project by creating Gantt chart based on the project's objectives and deadlines. The Gantt chart served as a tool for project time management and work package distribution. As the project progressed, the timeline on the Gantt chart was maintained monthly and the team adheres to the time schedule outlined in the Gantt chart to advance the project. Meanwhile, the work package distribution allowed all team members to engage in tasks aligned with their strengths, promoting efficient completion of work packages. Additionally, a dedicated GitHub repository was created upon project inception. In the README file of GitHub repository, we uploaded the Gantt chart and project milestones, utilizing various GitHub features to establish a workflow that supported the progression of project management activities.

Moreover, the team maintains bi-weekly meetings with supervisor to provide progress reports and updates the completed tasks to the GitHub repository. This practice facilitates intra-team awareness of the progress across different work packages and enhances collaboration when specific work packages require joint efforts. For instance, a team member responsible for the strain analysis of the manipulator need to examine the posture of manipulator while simulation. In such cases, the team member does not need to ask other team members to generate results. Instead, he can refer to the corresponding operational guidelines to independently obtain the necessary results. The documentation of each work package outlining programme operations contributes to the overall efficiency of the team. Furthermore, comprehensive documentation ensures that the open-source project is more accessible to a wider audience, facilitating ease of use for others and providing convenience for future team members who may continue the project.

Part B. Issue and Solution in Team Collaboration

An issue faced during the group project revolves around the necessity of using GitHub as the underlying infrastructure of project, given its open-source nature. However, the majority of

team members lack formal experience with GitHub, having only utilized fundamental features such as 'git clone'. The difficulties arose in uploading finalized content from the local repository to the remote repository, which is a relative challenge for those without prior knowledge in this area.

In addressing this particular issue within the project, a straightforward solution was implemented. I installed git command, PowerShell, and other ancillary applications for each team member. After installation, comprehensive guidance was provided to team members on utilizing PowerShell to upload local repository files to the corresponding remote repository, and practical exercises were conducted to enhance their proficiency in the process.

The issue has been successfully addressed at the beginning of our project. However, it has come to my attention that despite my assistance in installing Git for team members, they have not embraced the practice of utilizing GitHub while doing the project. Consequently, challenges have arisen in consistently synchronizing the progress of work packages and adhering to the established workflow. Additionally, there has been a notable difficulty in monitoring individual contributions and tracing the developmental trajectory of the project. It also proved difficult to track individual contributions and monitor the developmental trajectory of the project. These aspects are crucial in the development of an open-source project, as the project's evolution is an integral part of its overall progress. Simply uploading completed content into the GitHub repository falls short of the expected practices in a well-governed open-source project. Timely synchronization of each step's content and comprehensive project documentations are imperative elements that should be consistently accomplished.

The experience gained during the resolution of this issue indicates that, before involving team members in a workflow, the leader should clarify the purpose of adopting the workflow, rather than solely instructing them on how to use the tools within the workflow. The collaborative mindset of a team equipped with a workflow is of paramount importance. By clearly defining the objectives, team members can engage more meaningfully with the workflow, ultimately optimizing efficiency. Furthermore, during the initial phases of project, there are minimal intensive tasks. The simulated assignments can be introduced as a mock test to assist team members being more familiar with the workflow. This method effectively equips members to interact with the workflow more adeptly, leading to heightened overall efficiency.