

# Sundance Weekly Progress Report

Week 3

6.11.2022



sundance

## 1. Previous Week's Overview

Last week was our internet search week, we split each project between our members such that each project was to be searched by one of our members. We searched for similar projects, possible restrictions, possible subsystems, and some materials for each project. Then we gathered our research on the "miro" platform and everyone presented their research. Next, we chose some objectives (revised later) for project selection and gave them weights via voting. Lastly, we hastily chose a project (revised later).

## 2. This Week's Progress

### ***Revision of objectives & project choosing***

We started this week with the revision of our objectives, as some of them were not independent from each other which is not desirable for adequate voting of the projects. As the first, fifth, sixth, and seventh objectives were not absolutely independent; we removed the fifth one and combined the sixth and seventh one to create a new one. The revised objectives are given in the list below:

1. The project should be compatible with our individual skills and experiences. (0.18)
2. The design process should be fun. (0.20)
3. It is better if the outcome of the project is useful in real life. (0.12)
4. The more creative ideas we have about the project, the better (combining the outcomes of the brainstorming, devil's advocate, and Internet search activities). (0.17)
5. It is better for us if the project has tasks which are less time consuming. (0.20)
6. The components that will be used should be easy to find and buy for us. (0.13)

After we calculated the new weights for the objectives, we revised our project choosing to document and voted on the projects again. The results did not change significantly, and the Shadow Fixing Intelligent Canopy was ahead of the others. Since we also have various creative ideas for this project, we decided to choose the Canopy project.

### ***System-level research & design ideas***

After deciding on a project we immediately started bringing on the ideas with the team's vision in the mind. After meetings we wanted to proceed with a mathematical model of a couple of actuation ideas where the result may become a candidate structure for our design. We divided our ideas into three models. The first one is a Stewart platform with limitations of the project. The second one is a XY mechanism with a flat roof over a pole. The last one is a tree-like structure with modular branches with more than single flat sunshades and can be actuated in more than 3 degrees of freedom on each branch. We will start by realising our models using the Rhino/Grasshopper modelling environment to evaluate the performance and grasp its limits.

### ***Roadmap for proposal report***

This week, since the proposal report will be delivered next week, we determined the required work to be completed until the report. Then, all tasks are defined in the Kanban board. Tasks that should be done first were distributed in the team. After the completion of these tasks, other tasks will be also shared by the team in accordance with previous research. Moreover, we allocated some space on the miro platform for issues that will be discussed by the team so that everyone can state their ideas before the discussion.

## **3. Next Week's Plan**

This week we do research for our chosen project. Next week, we will do more detailed research to determine each person's research areas by considering objectives and constraints. We will write a proposal report so we will decide on the requirements for the proposal report. We will determine the functional requirements of the project and determine project objectives. We will make an objective tree, a Gantt chart showing the timetable of tasks up to the realisation of the project. We finalise our initial design ideas and make an animation demonstrating the design. Finally, we will write our proposal report.