**Group Software Development Project – Preparation Report**

“To summarise our project idea, we'd like the students to develop some analytics software which uses our API to interrogate an instance of SCi-Discover. We'd like the students to use the API and GeoJSON to display mission coverage on the map for a particular day. As a stretch target, we'd like this to be interactive, so we can see how coverage changes over time. As an extra stretch target, we'd like to toggle between missions and videos, so rather than see mission coverage on the map, see where we've got videos.”

The specification we have been given is very vague and the use of developing some user stories as a group has helped us try and identify what we want the software to achieve. We have noted that the application must have visualise data from flights and display mission coverage on the map, access data in table format e.g., Coordinates, have access to images and as a stretch target we should be able to toggle between multiple missions.

Potential User stories:

1. As a user, I can take inputted data from the flight and output this mission coverage area in a visualised manner on the Sci-Discover map.
2. As a user, I can access this data in a table format, displaying the Coordinates, Date Start, Object type and status etc.
3. As a user, I can access the surveillance pictures taken over the specified Geographical area.
4. As a user accessing mission coverage information, we would like to access mission coverage on the map for a particular day.
5. As a user I can interact with this data shown, to see how the coverage has changed through a select time period.
6. As a user I would like to toggle between viewing missions and videos from the coverage map.

We understand that the mission of the client is flying a plane, taking pictures and then data gathered is propagated into SCI-Discover. After going through the brief with all members of the team in Discord we gathered some questions for our elected speaker to ask Claire to expand on the fairly sparse specification. From this, we gathered that the requirements are loose on purpose to show creativity and that we are free in terms of what technology we wish to use to hit the brief. Moreover, the access to the API documentation was given very late and only a week prior to this report being in so it was slightly difficult to find enough time to come together and scan through it as a team. This is mainly due to the documentation being so detailed which is a positive but not in the sense of time.

During Claire’s presentation for Sci-Tools I noted how the company had moved from a software process that was based on the waterfall model to the SCRUM model which we will be using going into the project. Sky Bet also used a SCRUM method of working. Although the waterfall model appears simpler it is unpredictable, not effective at managing resources and makes it hard to implement consistent testing. We have decided to nominate a SCRUM master for our weeks next semester which will help everyone stay on track and prevent impediments on the team. However, we have decided against having a product owner as we will choose as a group who will be put onto each task throughout the weeks.

In terms of source control, for all code we will pushing it to GitHub and using their branch system so different teams/members can work on different parts of the project at the same time. GitHub will also be important for testing as it makes sure everyone will be using the most up to date version so if a member has run into an error everyone will have access to the same code to fix the issue. Furthermore, we shall be implementing Pair Programming and Test-Driven Development to aid these potential problems. In addition, we shall be using Trello for documentation to make sure everyone knows what they are doing and Discord for voice communication throughout the whole process. Discord is particularly necessary as currently we will not be completing the scrum weeks in person. Although there were a few options out there to use for voice communication much of the team was already very comfortable using Discord, but we did consider Zoom and Microsoft Teams as alternatives.

As we are not fully sure precisely what we will be developing the roles within the group have currently been split quite vaguely into Frontend and Backend for now. Specifically, my role in the group is fairly fluid as I have developed a full stack application, so I am able to fit into either and I am familiar with technologies used in both stacks. Despite this, during some initial discussions with the team we may be using Python which I currently have little to no understanding of so I will have to some research on this prior to the January SCRUM week.

In terms of how the project may fail, Covid-19 may be the ultimate factor as we are unable to have face to face SCRUM weeks which I imagine will hinder our progress. As a group I think we will need to establish core working hours during the day such as 10-3 so everyone is able to bounce ideas and help each other out. Other than that, members of the group can be free to work on the project during other times that fits around their schedule. In addition, we have already established that everyone has computers that are capable of writing and building code and that all members have a reliable connection in order to interact with the SCI-Servers.