The following are the results of the interview and the survey:

- The faculty member said that the university provides enough equipment for all students and often there are no defective tools.
- Currently, the university is experiencing a large number of students with the labs. This will affect the learning quality.
- The lab session is 50 minutes a week, which is considered to be a limited time to present the literature materials and conduct the lab experiments.
- The lab consumable equipment is replaced every year and non-consumable parts are replaced when needed or for an upgrade.
- The pricing of equipment depends on the type of equipment.

For the simulation software used in the lab. Figure 1 display the percentage of faculty that believe the simulation software used in the lab has limitations:

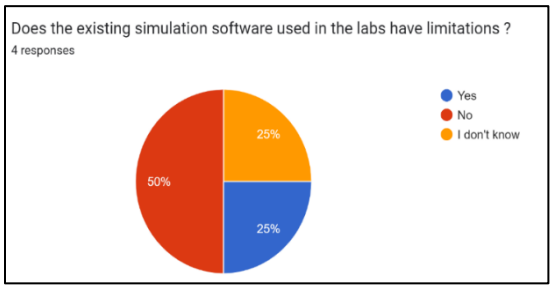

Figure 1 Existing simulation software limitations

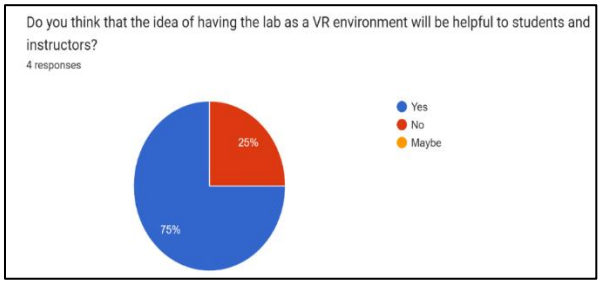

Figure 2 Opinion on VR lab environment

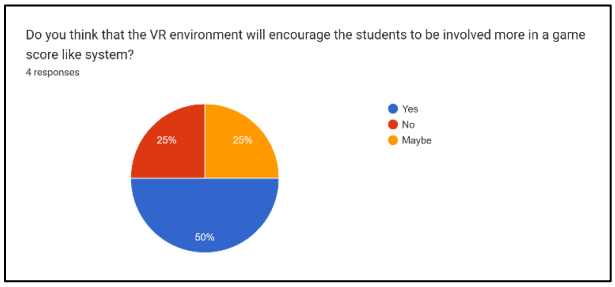

Figure 3 expected effect on involvement through the VR

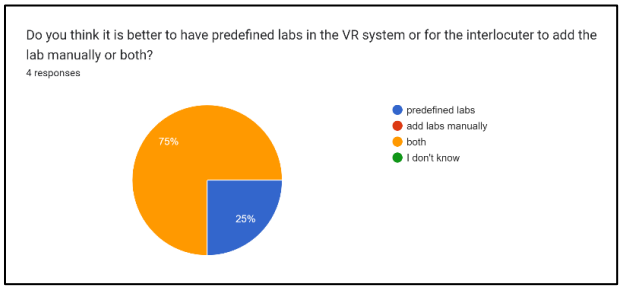

Figure 4 predefined labs and manually added labs

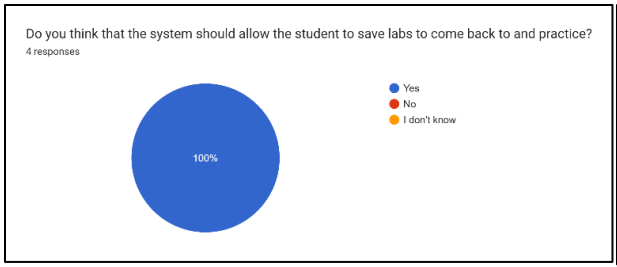

Figure 5 Save lab option

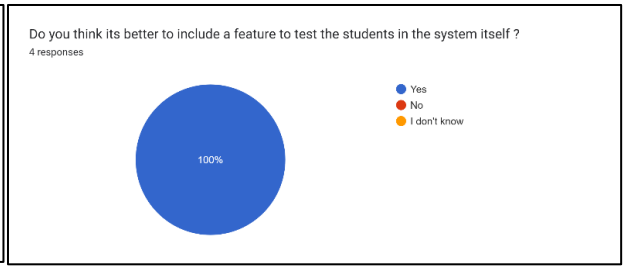

Figure 6 Test student option

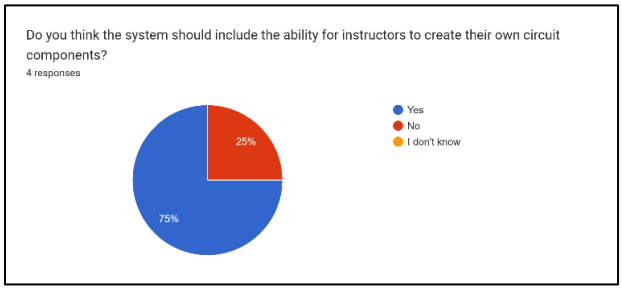

Figure 7 Creating circuit Components

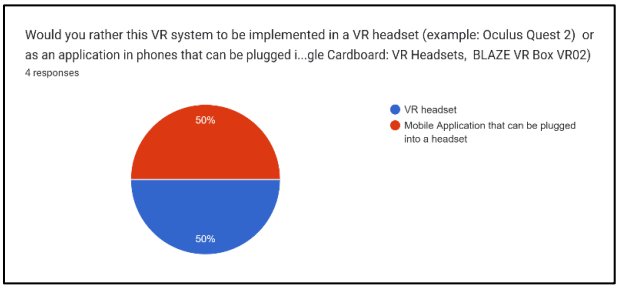

Figure 8 VR preferred headset

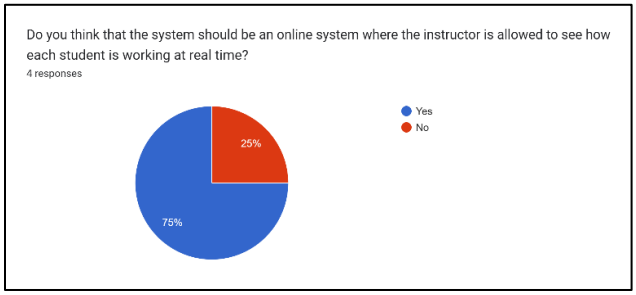

Figure 9 Online option

- Figures 1 – 9 present the survey results.
- The faculty said that the software is educational, so it does have some functionality limitations. If it can be replaced by alternative open-source software, and it would be more beneficial.
- For the lab VR environment, Figure 2 shows that most faculty think that it will be helpful.
- The students currently face the issue of time limitation for accessing the lab and lab resources.
- For the period of online teaching there were some difficulties teaching the lab such as the students are not focused during online sessions, the difficulty in attending to each student individually, and not being able to practice the lab using hardware.

- It will be helpful as a prelab, better learning experience, enabling on-demand learning and self-paced learning.
- One faculty member was against the idea of a VR lab environment, and he/she thinks it is unhelpful and would distract students, a usability test using a VR lab environment should be able to prove if the environment is helpful for students or not.
- The expected functionalities of the VR system:
- The VR environment should be easy to use, include all the components of the lab, be easy to scale up, and should be flexible in adding new components and experiments.
- The VR lab environment should solve the lab access problem (provide on-demand learning), relieve capacity crunch on finite lab resources, and should be able to help students in the absence of an instructor.
- It will be helpful as a prelab, better learning experience, enabling on-demand learning and self-paced learning.
- One faculty member was against the idea of a VR lab environment, and he/she thinks it is unhelpful and would distract students, a usability test using a VR lab environment should be able to prove if the environment is helpful for students or not.