



## Sri Lanka Institute of Information Technology

### PROJECT REGISTRATION FORM

(This form should be completed and submitted on or before 11.55 PM, Friday 17<sup>th</sup> January, 2020)

The purpose of this form is to allow final year students of the B.Sc. (Hon) degree program to enlist in the final year project group. Enlisting in a project entails specifying the project title and the details of four members in the group, the internal supervisor (compulsory), external supervisor (may be from the industry) and indicating a brief description of the project. The description of the project entered on this form will not be considered as the formal project proposal. It should however indicate the scope of the project and provide the main potential outcome.

**PROJECT TITLE**

(As per the accepted  
topic assessment form)

Science app for O/L students using augmented reality

**RESEARCH GROUP  
(as per the Topic  
assessment Form)**

Elearning and Education

**PROJECT NUMBER**

2020-160

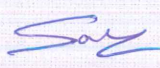
(will be assigned by the lecture in charge)

**PROJECT GROUP MEMBER DETAILS:** (Please start with group leader's details)


|   | STUDENT NAME                       | STUDENT NO. | CONTACT NO. | EMAIL ADDRESS           |
|---|------------------------------------|-------------|-------------|-------------------------|
| 1 | De Silva K.V.P.W<br>(GROUP LEADER) | IT17107624  | 0766933571  | wendydesilva9@gmail.com |
| 2 | U.S Hettihewa                      | IT17106252  | 0711892962  | upeka32@gmail.com       |
| 3 | Liyanage P.M                       | IT17157988  | 0719977953  | lprarangi@gmail.com     |

|   |                         |            |            |                    |
|---|-------------------------|------------|------------|--------------------|
| 4 | N.M.W.K.P.C Naranpanawa | IT17098588 | 0713711771 | piumi736@gmail.com |
|---|-------------------------|------------|------------|--------------------|

## SUPERVISOR Details

|                    |  |            |
|--------------------|--|------------|
| Uthpala Samarakoon |  | 21/01/2020 |
| Name               | Signature  | Date       |


## CO-SUPERVISOR Details (will be assigned by the Supervisor, if necessary)

|                    |   |            |
|--------------------|---|------------|
| Mr. Amarasena N.C. |  | 21/01/2020 |
| Name               | Signature   | Date       |

## EXTERNAL SUPERVISOR Details (if any, may be from the industry)

|      |             |                 |                 |                |
|------|-------------|-----------------|-----------------|----------------|
|      |             |                 |                 |                |
| Name | Affiliation | Contact Address | Contact Numbers | Signature/Date |

## ACCEPTANCE BY CDAP MEMBER

|                    |   |            |
|--------------------|---|------------|
| Mr. Amarasena N.C. |  | 21/01/2020 |
| Name               | Signature   | Date       |





**PROJECT DETAILS****Brief Description of your Research Problem: (extract from the topic assessment form)**

Most of the O/L students are getting low results for science in their examination because they are having a low interest to study. Sometimes schools which are having low resources are unable to provide a proper practical experience for their students. Such students are just only having a theoretical knowledge without any practical understanding on what they are learning. It will be helpful for O/L students to get higher marks if they can study in an interesting way and it will also be helpful if they can gain a real world experience on what they are learning

**Description of the Solution: (extract from the topic assessment form)**

Considering the above mentioned issues which exist among O/L students we have planned to develop a mobile app using augmented reality which will allow students to get a real world experience on the theoretical aspects they have learned and also this will be helpful for teachers at schools with low resources to demonstrate experiments to their students. Our app will consists of four components to cover the chemistry and biology content of the O/L syllabus.

- Students can get a 3D experience on labelled human body cells and labelled systems of the human body. Students will also get the ability to get a real world experience on the processes of the human body and the functioning of internal organs.

Eg -: blood circulatory process, functioning of the heart.

- Students can get a 3D experience on labelled plant cells and tissues. The organization of cell organelles and structures present in a cell will be demonstrated using augmented reality. Also students can gain a real world experience on the processes related to plants such as photosynthesis and plant reproduction. Some experiments will also be demonstrated using AR to get an idea about the release of CO<sub>2</sub> and absorption of oxygen during respiration.
- Another component will be developed for students to learn about the biosphere. The natural cycles like water cycle, carbon cycle etc will be demonstrated using augmented reality. Some experiments based on the preparation of some gases like CO<sub>2</sub>, hydrogen etc will be demonstrated using augmented reality.

- Another component is implemented to demonstrate molecular shapes of compounds. Also this component will use augmented reality to demonstrate the chemical reactions of element. Extractions of gold, silver are two experiments which will be demonstrated in this component.

#### Main expected outcomes of the project: (extract from the topic assessment form)

The main outcome is an augmented reality based mobile app to support O/L students to learn science in an interesting way. Students will get following objectives through the app.

- Understand the processes of the systems in human body and plants .
- Get a real world experience of some natural cycles.
- Focus on practical approach rather than just learning only theory.
- Get a 3d experience while learning which would make it interesting for students to study.

#### WORKLOAD ALLOCATION (extract from the topic assessment form)

(Please provide a brief description about the workload allocation)

MEMBER 1

IT17106252

Students can get a 3D experience on labeled plant cells and tissues and also the interior structure of cells and tissues. The organization of cell organelles and structures present in a cell will be demonstrated using augmented reality. Videos will be played using AR technology to demonstrate the processes related to plants such as photosynthesis and plant reproduction. Some experiments will be demonstrated using AR to get an idea of the release of CO<sub>2</sub> and absorption of oxygen during respiration.



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MEMBER 2

IT17157988

3d demonstration of animal cells and organization of internal cell organelles will be clearly presented. Also 3d demonstration of human body systems with a clear demo of internal organs will be presented. Audios and videos will be played to make it more effective. Text based descriptions provided in the text book on human body processes will be converted into audios and videos with the help of augmented reality. Also the app will display some internet links for further references. The app will provide MCQ questionnaires at the end of each human body system

MEMBER 3

IT17098588

The organizational levels in the biosphere will be demonstrated level by level with more clear 3d examples for each level. Growth curves and mechanisms involved in maintaining the equilibrium of ecosystem will be demonstrated using 3d animations and audios will be played for more clear understanding. The biogeochemical cycles will be demonstrated using videos and animations. For each and every cycle changes occurring in the environment as a result of those cycles will be demonstrated using augmented reality.

MEMBER 4

IT17107624

The app will be demonstrating the chemistry experiments explained in the text book using augmented reality. Video clips will be played. The chemical reactions explained in the text book are in verbal format and the use of so many formulas make it hard for students to understand. The AR app will demonstrate those reactions practically. For the molecular formulas of hydrocarbons and polymers the app will present 3d formations and animations to present the shapes of those molecules. Also the natural existence and productions done using those hydrocarbons and polymers will be presented using AR technology. The app will produce automatic answers for the

chemistry questions asked in exercises using AR.

## DECLARATION

"We declare that the project would involve material prepared by the Group members and that it would not fully or partially incorporate any material prepared by other persons for a fee or free of charge or that it would include material previously submitted by a candidate for a Degree or Diploma in any other University or Institute of Higher Learning and that, to the best of our knowledge and belief, it would not incorporate any material previously published or written by another person in relation to another project except with prior written approval from the supervisor and/or the coordinator of such project and that such unauthorized reproductions will construe offences punishable under the SLIIT Regulations.

We are aware, that if we are found guilty for the above mentioned offences or any project related plagiarism, the SLIIT has right to suspend the project at any time and or to suspend us from the examination and or from the Institution for minimum period of one year".

|   | STUDENT NAME                       | STUDENT NO. | SIGNATURE         |
|---|------------------------------------|-------------|-------------------|
| 1 | De Silva K.V.P.W<br>(GROUP LEADER) | IT17107624  | <i>Wendy D.S.</i> |
| 2 | U.S Hettihewa                      | IT17106252  | <i>Upe</i>        |
| 3 | Liyanage P.M                       | IT17157988  | <i>Pramudi</i>    |
| 4 | N.M.W.K.P.C Naranpanawa            | IT17098588  | <i>P.Chathu</i>   |