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|  | **Sri Lanka Institute of Information Technology** |

PROJECT REGISTRATION FORM

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(This form should be completed and submitted on 31st January and 1st February 2019 as per the schedule)

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.

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| PROJECT TITLE | IOT based Smart Crop Suitability System |

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| RESEARCH DOMAIN | Data Communication |

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| PROJECT NUMBER | 42 | (will be assigned by the lecture in charge) |

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

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|  | STUDENT NAME | STUDENT NO. | CONTACT NO. | EMAIL ADDRESS |
| 1 | C.P.Wickramasinghe  (GROUP LEADER) | IT16034600 | 0713269553 | chathura.95@hotmail.com |
| 2 | H.P.H.S. Hemapriya | IT16102460 | 0714242959 | hshansi6@gmail.com |
| 3 | P.L.N. Lakshitha | IT16021594 | 0711397206 | nayana1995@icloud.com |
| 4 | P.G.N.S. Ranasinghe | IT16119772 | 0716979451 | nssala16@gmail.com |

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| SUPERVISOR | | |
| Mr. Anuradha Jayakodi |  |  |
| Name | Signature | Date |

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| CO-SUPERVISOR (will be assigned by the Supervisor, if necessary) | | |
| Dr. Pradeep Abeygunawardhana |  |  |
| Name | Signature | Date |

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| EXTERNAL SUPERVISOR (if any, may be from the industry) | | | | | |
| Mr.Udaya Rathnayaka | Director of Agricultural Department- Agunukolapalassa | Agriculture dept, labuduwa,Galle. | 0714422748 |  |
| Name | Affiliation | Contact Address | Contact Numbers | Signature/Date |

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| ACCEPTANCE BY CDAP MEMBER | | |
|  |  |  |
| Name | Signature | Date |

PROJECT DETAILS

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| Brief Description of your Research Problem: |
| Currently farmers don’t have an accurate and easy way to know the most suitable crop that can be grown in a particular ground to obtain a better profit on behalf of the money they invest.  So in the current system most of the farmers farm crops by believing myths, and very few of them use scientific approaches. Believing myths is risky because crops related to myths may not always be the most suitable crop to grow in that particular ground.  For scientific approach, farmers need to test soil with the help of agriculture department. People need to travel long way to test soil by giving soil samples to agriculture department. It takes very large cost and as well as we can’t consider it as the overall soil result of the land. So result may vary with point to point of the land. So these problems will be gone by our project. |
| Description of the Solution  To solve those difficulties, we hoping to develop smart device connect with a fully functional android application. using the app, it will be more reliable and affiance to get an accurate idea about suggested crops.  A distributed application, which has centralized data warehouse, and analyzing those data and Predicting, and making decisions will be more helpful for go through those difficulties. In here, researchers are going to implement,   * An estimate fertility status module of soil which can easily identify the best crop that can plant in that ground. * A module can identify the nutrient level in soil according to crop we need to grow. to gain good result. * A module which give Suggestions for fertilizer recommendation for a given crop. * A module which Evaluate the particular crops. |

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| Main expected outcomes of the project: |
| The main expected outcome of this research is that the farmers can identify the most suitable crop for the soil type of their ground.  So that the time and effort of testing the soil with the help of an agriculture department can be saved.  Farmers can also get fertilizer plan of their chosen crop and the app will notify how the actual growth of the plant should be from time to time. So it will help the farmers to get the best result from their cultivation. |

WORKLOAD ALLOCATION (Please provide a brief description about the workload allocation)

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| MEMBER 1 | C.P.Wickramasinghe  …………………………………………………………………………………………………………………………… |
| **Designing the sensor sub system using Electricity Conductivity (EC) sensor, Temperature sensors.**   * + Develop a suitable sub system to get readings for the algorithm.   + Configure the entire sensor sub system to establish the data communication.   + Developing a co-relation using sensor sub system to estimate Potassium and Phosphorus percentage included in soil.   + Configure the system to communicate with cloud server.   + Implementation and Unit testing. | |

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| MEMBER 2 | H.P.H.S. Hemapriya  …………………………………………………………………………………………………………………………………………………… |
| **Develop crop suggestion module using machine learning algorithm to suggest the most suitable crop from the system.**   * + Analyze both ground type and average sensor readings with in-built data set in database and suggest most suitable crop using identified algorithm.   + Recommend suitability of the crop searched by the farmer in addition to crop suggested by the app.   + Developing a co-relationship to recommend necessary amount of fertilizer needed for have better harvest.   + Developing android application to display the most suitable crop suggested by the algorithm.     - Minimum reading count suggestion mechanism in machine learning.     - Generate average sensor reading details. | |

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| MEMBER 3 | ……jP.L.N. Lakshitha |
| **Design the sensor sub system using pH sensor, humidity sensors and build a co-relation between relevant fertilizers**   * + Develop a desired subsystem to get readings for the corresponding algorithms.   + Make configuration for the sensor sub system for buildup data communication   + Retrieve other relevant sensor readings from the cloud to refer for the co-relation build.   + Build co-relation using relevant sensor readings (humidity, pH, EC) to estimate Potassium and phosphorus percentage included in soil.   + Implementation and Unit testing. | | |

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| MEMBER 4 | P.G.N.S. Ranasinghe………………………………………………………………………………………………………………………………………………………… |
| **Select an appropriate cloud server and configure it to establish the connection to communicate with the system, in order to develop crop suggestion module**   * + Select and configure a cloud server according to the system requirements.   + Configure the entire sensor subsystem to establish the data communication with the cloud server.   + Developing a co-relation to generate necessary amounts of fertilizers a farmer should apply to the cultivation to have a better harvest.   + Developing an android application to generate and display the most suitable crop suggested by the algorithm     - Minimum reading count suggestion mechanism in machine learning     - Generate average sensor reading details. | |

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”.

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|  | STUDENT NAME | STUDENT NO. | SIGNATURE |
| 1 | C.P.Wickramasinghe  (GROUP LEADER) | IT16034600 |  |
| 2 | H.P.H.S. Hemapriya | IT160102460 |  |
| 3 | P.L.N. Lakshitha | IT16021594 |  |
| 4 | P.G.N.S. Ranasinghe | IT16119772 |  |