Sri Lanka Institute of Information Technology

PROJECT REGISTRATION FORM

(This form should be completed and submitted on or before 3.00 PM, Friday 3rd March, 2017)

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	Growth and disease detection and diagnosis of Anthurium plant.
RESEARCH GROUP	024
PROJECT NUMBER	(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	S.P. Amarasinghe.	IT14114786	077 3875515	sithumiamarasinghe93@gmail.com
2	S.S. Amarasinghe.	IT14123900	0714695765	siyumiamarasinghe@gmail.com
3	Peshani Madavika.	IT14045554	0710798437	peshanimadavika@gmail.com
4	Janith Kularathne.	IT14111884	0713146437	janithkularathne@gmail.com

SUPERVISOR

Name	Signature	Date

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

Name	Signature	Date

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

Name	Affiliation	Contact Address	Contact Numbers	Signature/Date

ACCEPTANCE BY CDAP MEMBER

Name	Signature	Date

PROJECT DETAILS

Brief Description of your Research Problem:

Anthurium is popular as both an exotic cut- flower crop and as a flowering potted-plant crop. Anthurium is a one of the important economic flowers of export potential. Anthuriums have long lasting blooms that include a colored, heart- shaped spathe with the protruding spike up the center. Spathe colors include deep burgundy, pink, mauve , peach and white with numerous shades in between, while the flower spike might be white, yellow or pink.

Anthuriums are a huge economical business nowadays. Anthuriums come in many varieties.

In Sri Lanka there are local and imported Anthuriums, which are brought and grown here.

Some names of the species of Anthuriums are,

Anthurium andraeanum, Anthurium crystallinum, Anthurium magnificum etc.

Since Anthurium is an economical beneficial plant for cultivators, most of the plant cultivators concern about Anthurium plantation.

Most oftenly growers report different kinds of diseases of Anthurium. Most of the time cultivators report about fungal, bacterial diseases in their commercial greenhouse environment.

In that case conventional methodology of naked – eye observation is an inefficient way of identifying the diseases in Anthurium on larger basis.

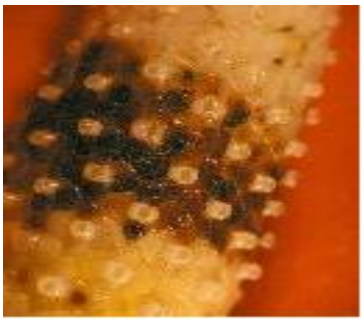
And also currently there is no any proper way of automated system to identify diseases of Anthurium even though Anthurium cultivation is done by larger basis.

If there is an automated way of identify the diseases at early stage of the disease by its symptoms accurately and efficiently it will be a huge advantage for cultivators since they can identify the diseases accurately at earlier stages and can prevent the disease from spreading further. So that they can increase the healthy production of their cultivation.

Therefore, this proposed system is a great solution for cultivators who are mainly focus on Anthurium cultivation. This proposed system can identify diseases at their earliest stage accurately and suggests cause of the disease and methods to prevent the disease from spreading further.

Some images of the diseased areas of Anthurium plants are shown below.





Description of the Solution:

The proposed application suggests a method to identify the diseases of large variety of Anthurium species. Mainly we are focusing on species of Anthuriums that grown in Sri Lanka.
The proposed system is capable of identify the disease by its symptoms. It's done by mainly analyzing leaf, flower and spadix of the Anthurium plant.
Since moisture level and acidity level of potting soil affects for healthy growth of the plant, System is capable of analyzing the given image of a potting soil and can predict whether the moisture level and acidity level of the plant is in healthy condition for the plant.
Then diagnosis of the disease is done by identifying the disease accurately, and resulting the cause and methods to prevent the disease.

Main expected outcomes of the project:

- Identify the diseased and a healthy plant by analyzing a given image of leaf, flower or spadix of Anthurium.
- Identify and determines the moisture and pH level of potting soil is in healthy condition for the healthy growth of the plant.
- Quantifying the disease in the diseased area of the plant and determines the severity of the disease.
- Classifying the disease and predicting the disease accurately mentioning the cause of the disease and also suggesting methods to prevent the disease.

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

MEMBER 1	**Feature extraction of the image.**

- Enhancing the image quality and removing distortion by using techniques such as image adjusting(zooming, rotating, shrinking etc.) , image smoothing (remove noisy data of the image and removing distortion) enhance the quality of the image which is taken by normal digital camera or scanner.
- Identifying whether the plant is diseased or healthy by analyzing flower, leaf or spadix of the Anthurium plant.
- Extracting the features (Shape, Colour, Direction of the spread) of the diseased area of the plant.

MEMBER 2	**Detection of the acidity/basicity and moisture level of the potting medium of Anthurium.**

Detection of the acidity/basicity of the potting medium

The pH in potting medium is an important concerning part of the soil health. pH is a term that is used to describe the degree of acidity and basicity. Soil acidity or alkalinity directly affects plant growth. If a soil is too sour or too sweet, plants cannot take up nutrients like Nitrogen(N), Phosphorus (P) and Potassium (K). Most nutrients that plants need are readily available when the pH of the soil solution ranges from 6.0to 7.5. Lack/excess of any of these nutrients may lead to cause different diseases. When Nitrogen is applied in excess
It encourages inhibits flower production, leaf burn etc. So pH level of potting medium is important aspect as lack/excess of the nutrients in the potting medium leads to many diseases in the plant.

So this functionality mainly focus on,

- Analyzing the image of the potting medium.
- Determines the pH level of the potting medium and verify whether the potting medium is in pH level is in healthy range for the plant.

Detection of moisture level of the potting medium

Anthuriums need water to live, but it requires low to medium amounts of water. Anthurium roots can develop root rot and roots can suffocate if given too much water. So moisture level of potting soil takes a huge importance of healthy growth of Anthurium. Lack/excess of moisture level may leads to different diseases in the plant.

So this functionality mainly focus on,

- Analyzing the image of the potting soil.
- Determines the moisture level of the potting soil and verify whether the potting soil is in healthy level of moisture to the plant.

MEMBER 3	**Quantification of the disease in the plant and identifying and classification of the disease. (Methodology 01)**

- Quantify the disease by analyzing diseased areas of the plant. (Mainly focus on leaf, flower and spadix) or by analyzing the acidity and moisture level of potting soil.
- Determines the percentage of the spread of the disease.
- Identification, classification and verify the disease by using a methodology 01.
- Determines Names of the disease, cause and methods to prevent.

MEMBER 4	**Quantification of the disease in the plant and identifying and classification of the disease. (Methodology 02)**

- Quantify the disease by analyzing diseased areas of the plant. (Mainly focus on leaf, flower and spadix) or by analyzing the acidity and moisture level of potting soil.
- Determines the percentage of the spread of the disease.
- Identification, classification and verify the disease by using a different methodology. (Methodology 02).
- Determines Names of the disease, cause and methods to prevent.

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	S.P. Amarasinghe.	IT14114786	
2	S.S. Amarasinghe.	IT14123900	
3	Peshani Madavika.	IT14045554	
4	Janith Kulrathne.	IT14111884	