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	Location Based Garbage Management System with IOT for Smart City
RESEARCH GROUP	
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	G.S.B. Dabarera (GROUP LEADER)	IT14005572	0778212653	dabarera.shehan27@gmail.com
2	R.K.R. Ranaweera	IT14005718	0716470501	rkruvinda@gmail.com
3	P.G.D.M. Perera	IT14008306	0710935175	p.g.d.m.perera@gmail.com
4	P.A.V.D.R. Panangala	IT14006326	0712923473	v.panangala@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:

In a current city, these are the main problems our initial analysis revealed

- Not enough garbage cans placed on proper positions to be easily accessible by citizens.
- Garbage bin cleaning is not properly managed by municipal council.
    - Cleaning staff not managed
    - Garbage bins not cleaned frequently enough
    - Cleaning staff route not tracked, hence no method to know if all the bins are cleaned
- Citizens are not well informed about the dangers of dumping garbage and not encouraged to use the provided garbage bins.
- Citizens have no method to know the locations of available garbage bins or the fill levels of them.

The above issues lead to garbage build ups around the city, which intern leads to

- Attraction of wild animals
- Spreading of diseases
- Citizens picketing against the government
- An overall unpleasant city

Description of the Solution:

Build a Smart garbage bin with the following functions

- Integrated hand gestures
- Visual garbage fill level indicator
- Visual indicator for the garbage type

Notification System

- SMS notification system for the cleaning staff
- Web based notification system for the administration

Bin location system

- Calculating best route for cleaning staff considering the
  - Fill levels
  - Distance to the garbage disposal site
- Calculating the best route for citizens considering the
  - Fill levels
  - Distance to closest bin from the current location
- Android application provided for Citizens and cleaning staff
- Mesh network and GPS used to calculate the most efficient routes

Main expected outcomes of the project:

Build a coordinated, efficient and economical garbage management system to be implemented on a smart city. Some other expected outcomes are :

- Encouraging people to use the garbage bins instead of throwing garbage on the road
- An overall pleasant and cleaner city

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

MEMBER 1

- Garbage Bin Setup and Management
  - Bin lock for filled level
  - Hand gesture system
  - Garbage level/type indicator
- Security management system

MEMBER 2

- Web Server Setup
  - Uploading sensor data to server
  - Hosting website on VPS
  - Creating and configuring databases
- Web Services
  - Creating analytical systems
  - Creating web notification system

MEMBER 3

- Workforce Application
  - Disable/Enable security system
  - Show bin location map
  - Show bin status
- Route Calculation
  - Calculate most efficient route considering bin levels

MEMBER 4

- SMS Notification System
  - ❖ SMS notification for 80%/100% fill levels
  - ❖ SMS notification settings on website for administration
- End User Application
  - ❖ Calculate shortest route to available bins
  - ❖ Show bin location map

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
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