



Sri Lanka Institute of Information Technology

PROJECT REGISTRATION FORM

(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.

PROJECT TITLE	Customer tracking system for promotions and offers
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RESEARCH DOMAIN	1. Machine learning 2. Deep learning
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PROJECT NUMBER	50	(will be assigned by the lecture in charge)
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PROJECT GROUP MEMBER DETAILS: (Please start with group leader's details)

	STUDENT NAME	STUDENT NO.	CONTACT NO.	EMAIL ADDRESS
1	Saluwadana S.M.R.B (GROUP LEADER)	IT16072848	0712629455	ravindubandarasaluwadana@gmail.com
2	Jayasinghe L.M.R	IT16113978	0717797048	madhavijayasinghe99@gmail.com
3	Hemachandra K.A.N.W	IT16139640	0719486459	nemindawarnaja@gmail.com
4	Ahnaf H.M	IT16139718	0770112998	ahnafhassanar@gmail.com

SUPERVISOR

Ms. Manori Gamage		
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:

Considering the domain of a shopping area, if there is a system to find out the promotions and the offers when customers moving near the shops inside the specified area it will be benefited to customer as well as the shop owners. We conducted a survey targeting 75 people and collect the ideas about this problem. According to the data of the survey we found out more than 95% of people is liked to have a system that they can get aware on offers while moving near the shops. According to the survey they believe that it will be useful for them to full fill their requirements while engage in shopping. We did some research on a bit similar kind of project in ODEL Colombo which was done using Beacons but we found out some issues with that mainly due to the cost of the Beacons. The initial charges for Beacons is considerable and considering about Beacons, we have to buy the SDK as well which will be an extra expense. The other issue that we found was that when there are objects between transmitters, the rays will be reflected. So cannot make sure whole area will avoid interfering objects between transmitters. Groupon.com is another a bit similar kind of website which is listing down offers. The drawbacks of this system are, it is not a location based system, no proper categorization and recommendations in searched results. Therefore we identified a research problem on sending notifications for special offers and promotions for customers who are moving near the shops which will be useful for both customers as well as the shop owners.

Description of the Solution:

We proposed a solution to notify customers when they are moving near shops which the user can get aware about offers easily through a mobile application. Also end users can search on special offers and merchants can have statistical data and charts about trending offers, respond of customers against the offers at the end of each month as additional features.

- ❖ Analyze public Facebook pages of merchants containing posts, identify the offers among all the posts and implement an API to fetch identified offers.
 - To identify the offer containing posts text extraction (image text converted into plain text) should be done. There are different techniques such as Connected component method, Mathematical morphology method, Edged based method and texture based method to extract text from images. Among these methods we have to find out the most suitable method for extract text for our requirement.
- ❖ Prioritizing the collected offers using an algorithm, to send only location based relevant notifications to customer. GPS will be used to track customer.
 - Logistic regression algorithm is used for the seasonal classifier as well as Naïve Bayes algorithm to filter and recommend offers when notifying using previous purchase history data and according to classified seasons.

- ❖ Provide recommendations for user when searching for offers. Considering offer validity, ratings of merchants, previous purchase and search history and other user related data.
 - Algorithms like Naive Bayes or logistic regression can be used. By analyzing those algorithms we will find out most suitable algorithm to do this task.
- ❖ Analyze monthly data of the behavior of the customers on offers, create statistics by using data mining on the whole month data and make aware the merchants about the trending offers and the customer behavior.
 - Data mining can be used to find the patterns of customer behavior against offers and can create statistical data from the collected data sets. By using Native Bayes classifier algorithm the data models can be created.

Main expected outcomes of the project:

The main outcome of the project is a cross platform mobile application that customers can get notifications containing offers when they are moving near shops (Location based). All the offers will not be sent as it will be a mess to customer. Offers will be sent according to the customer preferences, customer categorizations, previous purchases, etc. Additionally all offers will be listed down in the application that customers can search on offers that what they need. A payment system will be implemented to track customer reaction towards the sent offers. According to the behavior of the customer, statistical data will be created on trending offers, customer reviews about the offers, etc. which will be valuable for merchants to increase their sales and promotions.

WORKLOAD ALLOCATION (Please provide a brief description about the workload allocation)**MEMBER 1**

Identify customers' behavior by analyzing monthly data on offers. By considering customers likes and dislikes create statistics and show to merchants. Statistics include trending offers, less value offers and so on. And also give recommendations to merchants for a next month.

Management of customer reviews towards each shops will be handled. Based on the customer reviews and feedback for a shop give suggestions to merchants for improvement of the shop.

Research component :- In order to identify customers behavior by analyzing monthly data on offers and for analyzing customer reviews and feedback we have to find out an algorithm. There are several algorithms to do those tasks. Therefor we should analyze each of the algorithm and we have to find out a best fitting algorithm to do this. Or else by considering drawbacks and benefits of algorithms we have to develop a new algorithm for do this task.

MEMBER 2

Go through public Facebook pages of the registered merchants of our system and identifying the offer containing posts among all posts on their Facebook page. All the identified and extracted offer details will be formatted to card views and will display in a listed format in the application. When offers getting expired, offer validity handling will be done.

Login will be done through normal system login as well as Facebook login.

Research component :- To identify the offer containing posts text extraction (image text converted into plain text) should be done. There are different techniques such as Connected component method, Mathematical morphology method, Edged based method and texture based method to extract text from images. Among these methods we have to find out the most suitable method for extract text for our requirement.

MEMBER 3

Provide search recommendations for user when searching for offers. Considering offer validity, ratings of merchants, ratings on products, previous purchase and search history and other user related data.

A payment handling system will be implemented to track the taken offers by customers. Customer and merchant registration will be done. Customer registration will be done with all relevant categorizations like customers preferences while shopping, smart card types using, etc.

Research component :- A suitable algorithm need to be found to provide search recommendations. If not an algorithm need to be modified or developed to match the requirement. Afterwards the algorithm will be trained using a dataset.

MEMBER 4

Popup offer notifications once the user goes near the shop based on the current season as well as his past purchase history.

User categorization will be done as New, Premium, etc. to get concern on which offers will be sent to which customers.

Research component :- To classify seasons and to filter offers according to user purchasing pattern, a suitable algorithm or algorithms need be found. If not an existing algorithm need to be changed to match the requirement.

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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