Bachelors of Science in Information Technology

Gyalpozhing College of Information Technology

Proposal

For

Second Year Project

Bachelor of Science in Information Technology

Canteen Calculator

Submitted by

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Gyalpozhing College of Information Technology

Read carefully before filling the form.

1. Please do not alter the layout of the application form. Information must be filled in the spaces provided, under set format.
2. Guidance notes in various fields should not be deleted.
3. Required information should be duly filled in the specified fields.
4. Required heads/fields which are not relevant to the project should be marked **N/A** (Not Applicable) or left blank and should not be deleted.

Bachelors of Science in Information Technology

Gyalpozhing College of Information Technology

Guidelines and Forms

Submission Procedure

Duly filled proposal forms completed in all respects should be submitted in form of soft copy and a hard copy to project guide and project coordinator. On receipt of the applications the proposals will be evaluated by reviewer panel and proposal would then be defended by student groups. The project group may need to revise the proposal in light of the evaluator's recommendations.

For further information, please contact:

Project Coordinator

Jigme Wangmo
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tsheringlhamo.gcit@rub.edu.bt

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Application for Final Year Project

1. Project Identification

A. Reference Number:

(for office use only)

B. Project Title: Canteen Calculator

C. Project Internal Guide:

Name:	
Designation:	
Organization:	
Mobile # :	Tel. # :
Email:	

C1. Project External Guide:

Name:	**NA**
Designation:	
Organization:	
Mobile # :	Tel. # :
Email:	

C2. Student Group Lead:

Name:	
Roll No:	
Department:	
Mobile # :	Tel. # :
Email:	

D. Organizations Involved in the Project:

(Please identify all affiliated organizations collaborating in the project, and describe their role/contribution to the project.)

D1. Industrial Organizations:

#	*Organization Name*	*Role / Contribution*
	NA	

D2. Academic Organizations:

#	*Organization Name*	*Role / Contribution*

D3. Funding Organizations:

#	*Organization Name*	*Role / Contribution*
	NA	

E. Key Words:

This application is:

Android based mobile application, Calculates the amount particular person has brought from the canteen, admin and user login.

F. Research and Development Theme:

The theme of my project would be developing a platform where the students, staffs of GCIT can easily do the payment of their bills in canteen. The application will help the user to properly do all the calculations without malfunctions. The application will also be convenient and user-friendly so that everyone can use the application.

The potential human error could also be reduced and the way of visiting canteen will be different and digital.

G. Project Status:

(Please mark ☑)

q New ☑ Modification to previous Project

☑ Extension of existing project

H. Project Duration:

Expected Starting Date:	
Planned Duration in months:	

2. Scope, Introduction and Background of the Project

A. Scope of the Project:

User Scope: Class level(College Canteen)

The scope of the project is limited within the college canteen where it will help the customer (students and faculties) to calculate the total amount efficiently.

System Scope:

To develop mobile based application for canteen calculation.

- Digitalized Calculation: The application will calculate the total amount just by clicking on which item the user has purchased and quantity.
- The application will ask the user to keep certain monthly amount as a limitation so if the user exceeds the limitation, the app will notify the user about it.
- Error-free calculation: All the calculation will be error- free.
- Proper database for the admin who can update, add and delete the items.

- The admin can add any new information on the application.

B. Introduction (Project Background and Literature Review, Current State of the Art):

Canteen is a place where food is provided but there is little or no waiting staff table service[1]. Canteen is called mess or refectory. Canteen has food serving counters or stalls. Customers take the food they require as they walk along, placing it on a tray. Free second servings are often allowed under this system. Customers are either charged a flat rate for admission or pay at the check-out for each item. Some self-service cafeterias charge by the weight of items on a patron's plate. As canteens require few employees, they are often found within a larger institution, catering to the clientele of that institution. For example, schools, colleges and their residence halls, department stores, hospitals, museums, military bases, prisons, etc. canteens are often contracted to outside. Canteens in organizations or factories are very important and have to follow certain rules. Canteen is one of the most important constituents of factories act, 1948. Factories act, 1948 added a section 46 on canteen in the chapter V on welfare. According to this, The State Government may make rules requiring that in any specified factory wherein more than 250 workers are ordinarily employed, a canteen or canteens shall be provided and maintained by the occupier for the use of the workers.

In today's age of fast food and take-out, many canteens have chosen to focus on quick preparation and speedy delivery of orders rather than offering a rich dining experience. Until very recently, all of these delivery orders were placed to the waiters or over the phone, but there are many disadvantages to this system, including the inconvenience of the customer needing to have a physical copy of the menu, lack of a visual confirmation that the order was placed correctly, and the necessity for the canteen to have an employee answering the phone and taking orders. And after a nice meal all of us have to go out in the counter and say what meal we had, this could be a headache for the manager as well as the customer. What I propose is a canteen calculator which will take care of all the rush hour problem and ease the customer's as well as the manager's job.

The way that our college canteen function is the same as other canteens around the country. There is a manager and the customer after having the meals have to go to the manager and say all items he/she had. This is the work load to the manager and the customer. This traditional way causes many problems like time management, confusion, space problems and etc. In-order to overcome this difficulty I propose to develop a mobile application which will sum up the amount the customer had just by clicking on the items the customer had taken. Not only will this but the application also inform the customer about the new items available in the canteen. This way there will be less traffic among the customer waiting for their turn to add up the items they took. And less headache for everyone.

Literature Review:

I. According to the research conducted by Mrs.A.Gowthami, Ms.T.Banupriya and Ms.E.Vadivukkarasi. The project "CANTEEN AUTOMATION SYSTEM USING ANDROID".[2] enables to register online read and selects the food from E-menu card and the user wants to use android application. The result after choosing the food from the E-menu card will directly seem on the screen near the chef. The gadget is the mixture of android as nicely as internet application. The barcode system is used for reading the products. By the usage of this application the work of the waiter is decreased and we can also say that the paintings are nullified. The benefits of this is that if there is a rush in the canteen then there will be change that the waiter will be unavailable and the user can at once order the food to the chef on-line by the use of this application. The user will have username and password, by using which they can login into the system. This means that the purchaser is the regular consumer of the canteen. Their system is mainly based as online system which will take care of the orders. Their features include the registration and the login channel for both admin and the user.

II. According to the second research "Android based canteen automation using Wi-Fi" conducted by Kalyani Dahake and Prof. A. D. Bhoi.[3] Their main features includes a wireless application on mobile device which provides a mean of convenience, improving efficiency and accuracy for restaurant by saving time, reducing human errors and a real-time customer feedback. This initiative will help school/colleges/university campuses to go digital. The implementation of this system will be done using android application for Tablets and it helpful for restaurants management system.

The above two literature reviews will help the project to get some additional features and can improve the quality of the application. The information on the above research will help my application to overcome the drawbacks they had in their application.

C. Challenges:

- Device compatibility: Since it is an android based application it will be available only to android mobile. It will not support other application platform.
- Traditional Canteen system also has the advantage of being less prone to technical failures than tablets and phones.
- There is also disagreement as to whether devices should be allowed in the school campus

D. Motivation and Need:

The way that our canteen functions right now is, after the meal the students/faculty has to go the counter and say all the things they took, after that the manager calculates the total amount by summing up the items the customer took. This way of calculating causes lots of issues like human error, time wastage and the space occupancy. The canteen calculator application will help both the customer and the manager by summing up the amount in their phone. This way there will be time management, no error in calculating and will save lot of compact space in the canteen. Even there will be transparency in the payment.

3. Aim and Objectives of the Project

AIM : "Transforming traditional way of canteen calculator into digitalize way"

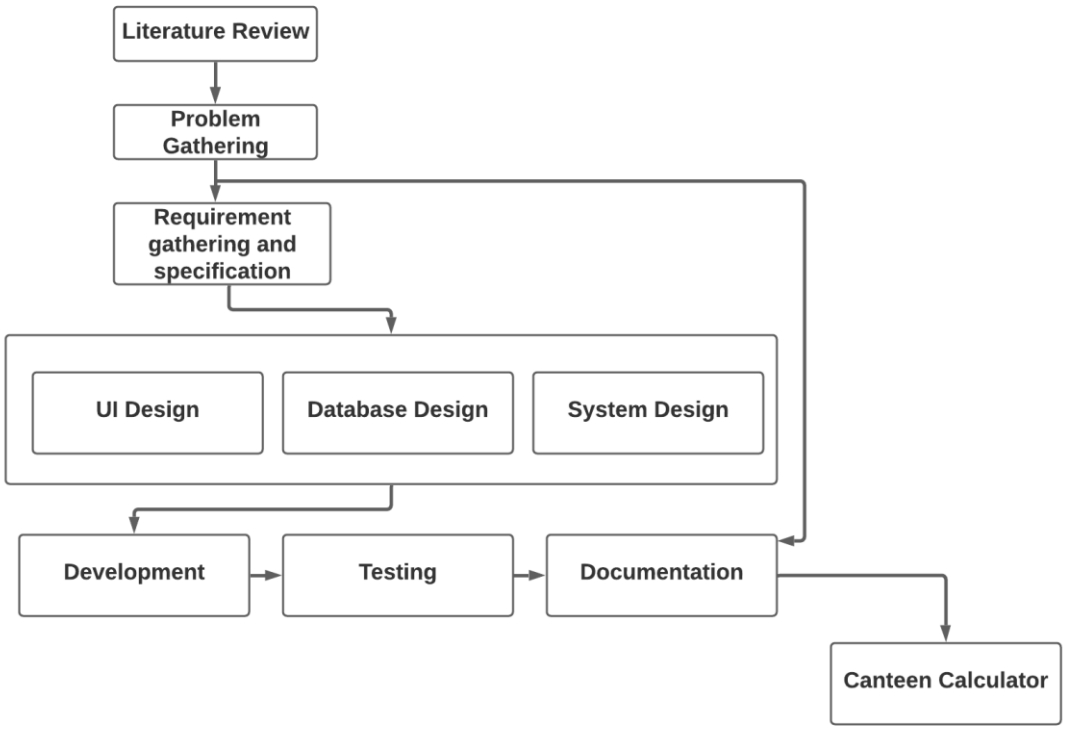
The smart way of totaling up the bill will be very efficient for the users as there will be no errors and the rate of the items will be transparent and will save lot of time.

OBJECTIVES :

- To help the users to calculate their bill in smart way: The mobile application will calculate their bills just by clicking on the item and giving the quantity.
- Error-free calculation: All the calculations will be error-free.
- Emphasis the new information provided by the admin: If any new items are there in canteen the admin can post it in the application.
- Saves lots of time and space: This digitalizes the way of calculation and can reduce the time and the compactness in the canteen.
- Transparency in the rate of canteen: As the rate of every item can be seen in the application the employee and the manager cannot charge more to the customer.

4. Methodology

A. Development / Research / Test Methodology:



The background knowledge of other research found from my literature review will help my project get some extra bit of information and requirements for the project. After this the project will gather all the requirements and problems associated with the project and analysis it accordingly.

After the completion on the problem and requirement phases this is where the user interface design, database design(backend) and the overall system design will be designed. The next phase comprises of development of the application where various features of the app will be developed. During the development, every feature will be tested by the team to insure the functionality of each component.

Development Model

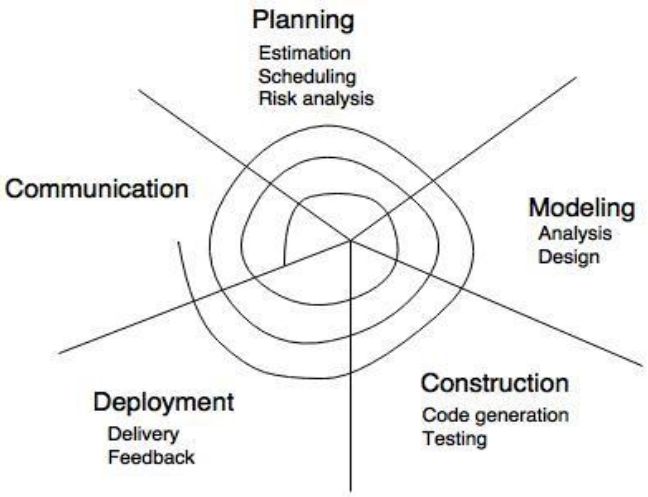


Fig. - The Spiral Model

I chose to use spiral model to develop my project because of the following benefits suitable for developing a web application:

1. Software is produced early in the software life cycle.
2. Risk handling is one of important advantages of the Spiral model, it is best development model to follow due to the risk analysis and risk handling at every phase.
3. Flexibility in requirements. In this model, we can easily change requirements at later phases and can be incorporated accurately. Also, additional Functionality can be added at a later date.
4. It is good for large and complex projects.
5. It is good for customer satisfaction. We can involve customers in the development of products at early phase of the software development. Also, software is produced early in the software life cycle.
6. Strong approval and documentation control.
7. It is suitable for high risk projects, where business needs may be unstable. A highly customized product can be developed using this.

B. Project Team:

Title / Position	***Number***
Project Internal Guide	
Project External Guide	
Student Team Members	1
Others (please specify)	
Add more rows if required	

C. Project Activities:

The installation of software and tools :

1. Installing Android studio (version 2 or more), Android SDK and Java Development Kit (version 8 or more) for developing the application.

2. SQLite server for database.

3. Mock-plus for android is all –in- one product design platform for prototyping, Collaboration and creating design systems.

Procedure:

- I will be referring various tutorials, books and websites related to the application that I am going to develop.
- There will be flow charts, designing UML diagram and user interface,
- By using SQLite server there will be database to store data from the admin.
- After completion of the project there will be unit testing of each and every components. After that there will be integration testing as every component will be integrated and tested. After both the testing there will be a system testing to test the entire system.

D. Key Milestones and Deliverables:

No.	*Elapsed time from start (in months) of the project*	*Milestone*	*Deliverables*
	09/02/2021 – 20/02/2021	Topic Selection.	Topic selected
	21/02/2021 – 13/03/2021	Literature Review	Project proposal and presentation
	15/03/2021 – 21/03/2021	Requirement Gathering and Analysis.	SRS Document.
	26/03/2021 – 7/04/2021	System Design.	ER diagram, Relational diagram, architecture design, database design, User interface design
	9/04/2021 – 2/05/2021	Development/coding.	Source code and functional features implementation.
	4/05/2021 – 15/05/2021	Testing.	Test case.
	17/05/2021 – 24/05/20	Final Documentation.	Final report presentation.

(Please add more rows if required.)

5. Benefits of the Project (Expected output/outcomes):

The canteen calculator application will be benefited for the canteen admin as well as we the user because this app particularly does the entire sum up with no error, just by clicking on the name and giving the quantity. It will be free application and will be user friendly and easily accessible.

6. Risk Analysis/Feasibility

A. Risks of the Project:

(Please describe the factors that may cause delays in, or prevent implementation of, the project as proposed above; estimate the degree of risk.)

(Please mark ☑ where applicable)	Low	Medium	High
Technical risk		☑	
Timing risk		☑	
Budget risk	☑		

A1. Comments(Describe the risk):

Technical Risk :

There could be a technical issue like the android version which I currently using could come up with new updates and version which might be difficult.

Time Risk:

The project may not be able complete within time and may not be able to follow the schedule.

Budget Risk

There is no involvement of budget so I estimated it to be low.

7. Project Approval Certificate

(Approval of Project Proposal by the Competent Authority (Department Chairman) and Project Review Team is mandatory before the start of project execution.)

Project Review Team:

Sl #	Name	Signature

(Please add more rows if required.)

Project Coordinator

Name:

Designation:

Email:

Date: Signature:

Competent Authority – Head of Department

Name:

Designation:

Email:

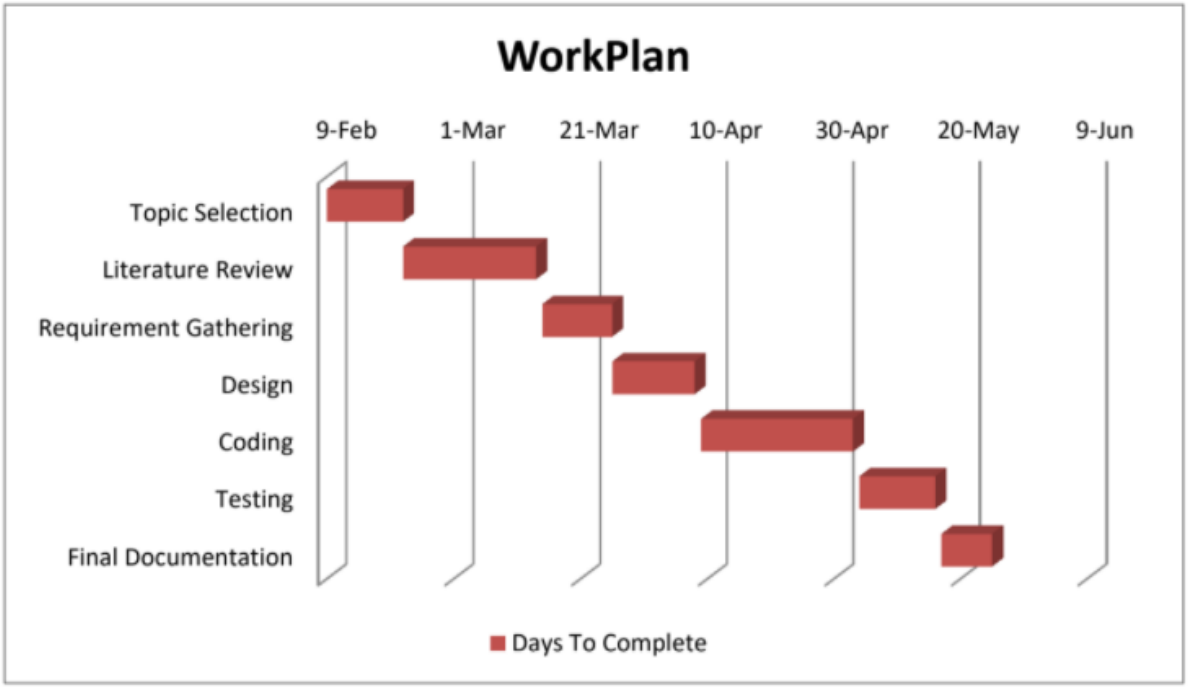
Date: Signature

& stamp:

8. Reviewers Panel Comments

10. Project Schedule / Milestone Chart /Work plan

Activities	Start Date	Days To Complete	End Start
Topic Selection	9-Feb	12	20-Feb
Literature Review	21-Feb	21	13-Mar
Requirement Gathering	15-Mar	11	25-Mar
Design	26-Mar	13	7-Apr
Coding	9-Apr	24	2-May
Testing	4-May	12	15-May
Final Documentation	17-May	8	24-May



13. Report Writing Guidelines

(Project report will be written under the specified guidelines.)

Bibliographie

[1] Czarniecka-Skubina, E., Górska-Warsewicz, H., Laskowski, W., & Jeznach, M. (2019). Consumer choices and service quality in the university canteens in Warsaw, Poland. *International journal of environmental research and public health*, *16*(19), 3699.

[2] Gowthami, M. A., Banupriya, M. T., & Vadivukkarasi, M. E. (2020). MOBILE APPLICATION FOR CANTEEN AUTOMATION SYSTEM USING ANDROID. *International Journal of Advanced Research in Computer Engineering & Technology (IJARCET)*, *9*(3).

[3] Dahake, K., & Bhoi, A. D. ANDROID BASED CANTEEN AUT.