

Bachelors of Science in Information Technology

Gyalpozhing College of Information Technology



**Proposal
For
Second Year Project
Bachelor of Science in Information Technology**

GCIT - Gate Scan

**Submitted by
DHENDUP GHISHING (12190048)**

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.

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

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Tshering Lhamo

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Application for Final Year Project

1. Project Identification

A Reference Number: (for office use only)	
B Project Title: Note-taking App (Keep Me)	
C Project Internal Guide: Name: Ms. Sonam Wangmo Designation: Assistant lecturer Organization: Gyalpozhing College of Information Technology Mobile # : Tel #: Email:	
C1. Project External Guide: Name: NA Designation: Organization: Mobile # : Tel. # : Email:	
C2. Student Group Lead: Name: Dhendup Ghishing Roll No: 12190048 Department: BSc IT Mobile # : 17692664 Tel. # :	

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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	

C Key Words:

This application is: Generate QR code, scan QR code, records, incoming, outgoing and registration.

Android application, It is QR scan based application, Login and registration form for both user and security guard, Keeps the record whether the user is inside or outside the campus.

F Research and Development Theme:

As we move to more advanced generation, it is a necessary condition that one needs to take several measure to keep our self-safe as the rate of mischievous activity is increasing every year. The practice of keeping the record of outgoing and incoming individual within the society is one good step that is found till now. This similar condition is also seen within the campus of GCIT but the record is being updated on the book. Somehow the book that contains the record is not a reliable and trustworthy source. Therefore, this project is going to develop an android application known as GCIT-GateScan to replace the current paper registration process.

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G Project Status:

(Please mark ☒)

- ☐ New ☒ Modification to previous Project
☒ Extension of existing project

H Project Duration:

Expected Starting Date: 1/03/2021

Planned Duration in months: 1 semester

2. Scope, Introduction and Background of the Project

Scope of the Project:

User scope: The project targets the staffs and students of GCIT as they are the one who frequently leave and visit the college campus.

The project focuses the boundary within the college campus since the purpose of application is to provide security to the staff and students of college.

System Scope

- Login: Enable the user to get inside the application through their account.
- Register: The user needs to create account to access the application.
- Scan: Verify the outgoing and incoming people within the college campus digitally.
- QR code: Scans the code so that the data are been stored in the database.

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

Introduction

Gyalpozhing College of Information and technology was established on February 2, 2017 in Mongar, Bhutan, as part of the Royal University of Bhutan. The college campus consists of two gates. The main gate is built for the main entrance of staffs, students, and vehicles and the second one is build beside the old boys' hostel 1 which is meant for foot pass. There are hundreds of students, staffs, and vehicles going in and out from these gates and by using the current process of registration in the gate is tedious and tiresome.

As we all know that smartphones have become an integral part of our daily lives in the modern era. Convergent factors such as high-speed data networks, relatively inexpensive devices, high-performance devices, easy-to-use app stores, and the need for simple, targeted applications have all influenced the emergence of mobile applications. Similarly, if android application with feature to maintain the record digitally will be a great idea to overcome the drawbacks of current registration process in GCIT.

Therefore, the purpose of this project is two-fold, first of all to keep record of every individual who comes in and goes out of the campus. And second to secure the data and records of individuals who goes in and out from the campus. Currently in GCIT, the registration process is done by writing every detail of individuals. Whereas the digital way of recording data will overcome the drawbacks of current process of registration just by scanning the QR code generated by the security guard present in the gate.

With a single scan, user's information such as their name, place of visit, coming from, and time will be stored in the database and will be displayed in the dashboard of the security guard's app. This way the tedious process of registration will reduce. Not only this the current process of registration has high chance of losing the record books so if the data is digitally maintained, the saved data would be safe and secure in the android application (GCIT- Gate Scan).

Literature Review:

It is very necessary to keep the record, if someone visits any organization, offices and places. It is so because such data helps to trace the person if something happens wrong. Similarly, during pandemic it has become necessary to keep the record of individual to avoid spreading of diseases in the community. If the data of a person who is visiting or traveling from place to place is maintained, it would be easy to trace them and if he/she is infected from disease, he/she can be notify not to travel or visit further. According to Royal Government of Bhutan, to fight against pandemic of covid -19, it has become must to keep the record of individual who all are traveling from one place to another. This records help to expedite contact tracing in case of local transmission. To overcome the challenges in covid-19 pandemic, they have also come up with DrukTrace app. From the feedback session of DrukTrace app, many users are happy to share their information to Government and stay safe from covid-19 using Druktrace app.

According to Joe Heaney (2019) clear and organized records are very important for maintaining compliance and avoiding future issues. In case for any inspection, it is must to have physical evidence, photographs, communication with inspector, and copy of visitor's log. If the inspection resulted in a violation, it would be easy for inspector to analyse the degree of violation, if data are recorded. More importantly it is must to keep the data or record safe and the best method to keep it safe is through digital record keeping. Digital record keeping can be intimidating and ultimate mean secure the data, and easy to access record at any time.

Current State of the Art

Currently in GCIT, all the students, staff and other individual have to go through paper registration process to enter and leave the campus. This system of paper registration is time consuming and not safe since there is a chances that record book may get lost any time.

In future, it would be troublesome to get access to the updated record if the record book is lost. Therefore, to replace current paper registration processes, the idea to have a platform to register the incoming and outgoing record digitally through android application will be excellent decision. Due to this reason this project aims to develop an android application known as GCIT-GateScan app to keep the record of people who leaves and enter the college.

Through GCIT-GateScan app, one can scan a QR Code generated by security guard where their information would be saved in database and shown in the dashboard of security guard. Thus, the GCIT-GateScan app will give efficient registration process and data would be saved securely for longer duration.

C Challenges:

- 1.Meeting the project schedule
- 2.Hardware failures
- 3.Productivity issue and Security issues

D Motivation and Need:

The registration process existing now in the GCIT is done through paper which does not proves to be efficient and grantees strong security to the people living in the college. This reason shows that it is a high time to have an android application where the guards can record the outing and incoming people within the college campus. Through such application it will be much easier for the guards to keep the record of people leaving and entering the campus. Furthermore, the application will be more secure to record the data that is been updated. Therefore, this project targets to develop an GCIT-GateScan android application to fulfill the purpose of effective registration process in GCIT.

3. Aim and Objectives of the Project

AIM: To replace tedious paper registration process in GCIT entrance gate with fast and efficient android application to register digitally.

OBJECTIVES:

- To reach out to every individual with easy registration through scan based
- To keep valid information of every individual who all are coming in and going out of the college campus
- To keep the record securely and for longer duration
- Easy access to the records for any inspection in future.

4. Methodology

A Development / Research / Test Methodology:

For the development of the android mobile app “GCIT-GateScan”, Agile Model will be used.

Problem statement: Currently in GCIT, if anybody have to visit college they have to go through paper registration. When there are many people registering at a same time, it is tedious. Since the records are stored in record books, it wouldn't be safe for longer duration as there is every chance that it may get burn, wet, torn, and etc. losing all the data. Therefore, this application will help to provide the platform for the people living in GCIT campus to have digital registration which will be more efficient and easier.

Planning

In this phase, the team will discuss the overall idea and problems of the project and get the overview of it.

Requirement gathering and analysis

The requirements will be gathered through many ways such as previous research papers and surveys. After the requirement gathering is done, the team will study the problems in more detail. Then, the requirements will be documented in SRS (Software Requirement Specification) document.

Design

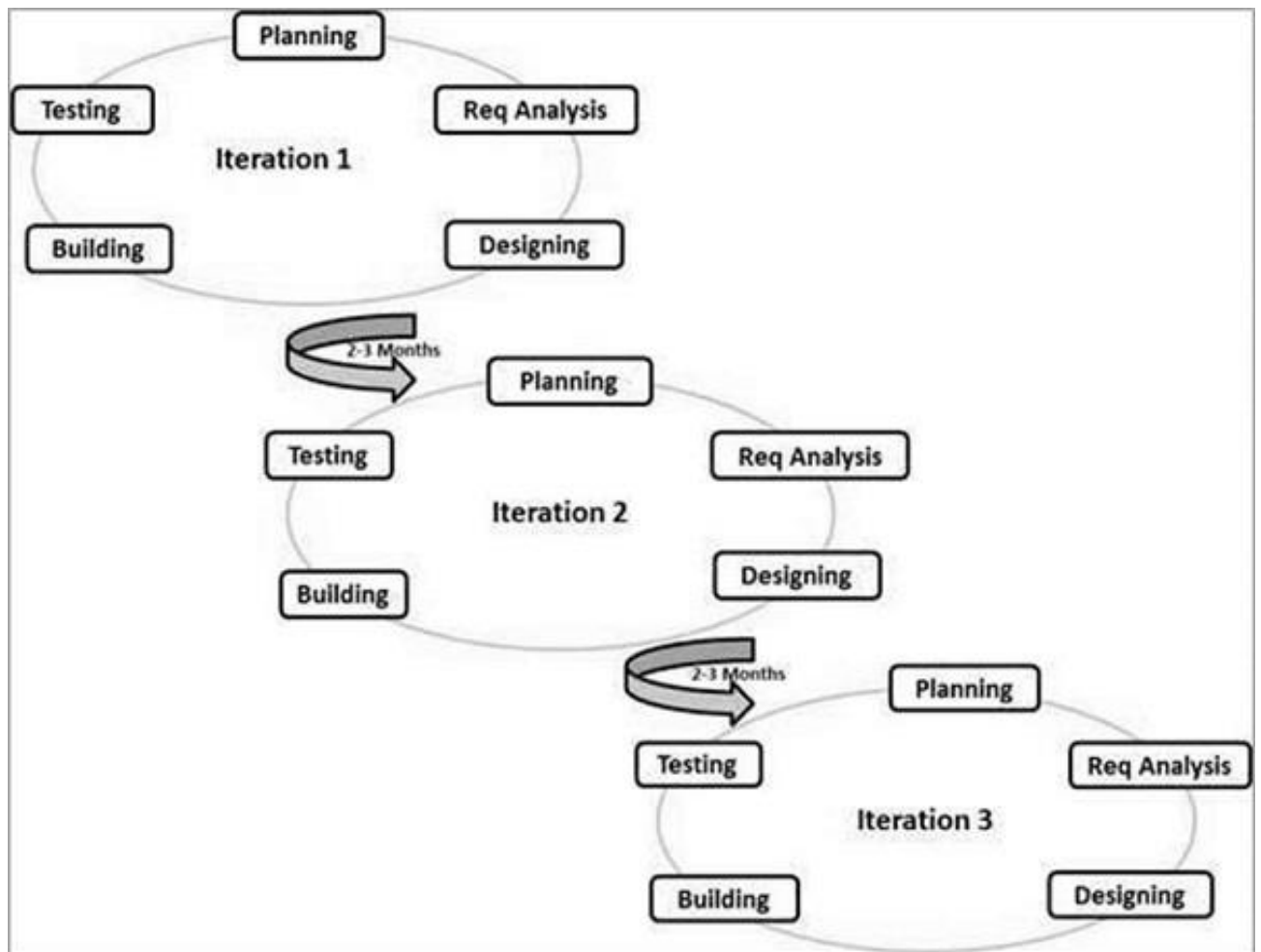
The design of the project will be prepared from the requirements specified in the previous phase. The design will include the prototype, architectural design, user interface design and database design.

Implementation/Coding

With inputs from design phase, the implementation of the project will start.

Testing

After the development, the product will be tested using various types of testing such as unit testing, integration testing, system testing and acceptance testing. If any functionality doesn't work properly, it can always go back and verify from the previous phase.



Agile model is a combination of iterative and incremental process models with focus on process adaptability by rapid delivery of working software product. It breaks the product into small incremental builds. These builds are provided in iterations. It encourages flexible responses to change.

The reasons for choosing Agile model for developing the app are:

- Small projects can be implemented very quickly.
- Errors can be fixed in the middle of the project.
- Flexible since requirements can be easily changed.
- Functionality can be developed rapidly and demonstrated.

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B Project Team:	
<i>Title / Position</i>	<i>Number</i>
Project Internal Guide	1
Project External Guide	
Student Team Members	4
Others (please specify)	
Add more rows if required	

D Project Activities:

(Please list and describe the main project activities, including those associated with the transfer of the research results to customers/beneficiaries. The timing and duration of research activities are to be shown in the Gantt chart in Section 8.)

1. Installation of software and tools:

Installation of Android Studio, Java Development Kit, Geny Motion and database server for the development of the app.

2. Gathering requirements:

Collecting all required information about the app from various means such as referring from books, and video tutorials

3. Design phase:

This phase is fully committed for designing user interface, database design and architectural design of the app using the information obtained from the previous phase.

4. Development phase:

The development of the app begins here with coding using android framework.

5. Testing Phase:

After the development of the app, the product will go undergo various testing such as unit testing, integration testing, system testing, acceptance testing.

6. Final Documentation:

After all the phases are completed, we will prepare the documentation and final report of our project.

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D. Key Milestones and Deliverables:

(Please list and describe the principal milestones and associated deliverables of the project. A key milestone is reached when a significant phase in the project is concluded, e.g. selection and simulation of algorithms, completion of architectural design and design documents, commissioning of equipment, completion of test, etc.) The timing of milestones is also to be shown in the Gantt chart in Section 8.

No.	Elapsed time from start (in months) of the project	Milestone	Deliverables
1	09/02/2021 – 13/02/2021	Topic Selection.	topic selected
2	07/03/2021 – 10/03/2021	Brain storming, Feasibility and Survey.	Project proposal and presentation.
3	07/03/2021 – 10/03/2021	Requirement Gathering and Analysis.	SRS Document.
4	11/03/2021 – 12/03/2021	Software Installation.	Setting environment for development.
5	13/03/2021 – 18/03/2021	System Design.	ER diagram, Relational diagram, architecture design, database design, User interface design.
6	21/03/2021 – 10/05/2021	Development/coding.	Source code and functional features implementation.
7	11/05/2021 – 15/05/2021	Testing	Test case
8	16/05/2021 – 22/05/2021	Final Documentation.	Final report presentation.

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(Please add more rows if required.)			

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

- **Expected output:**
 - An android mobile app for digital registration
 - Project report
- **Expected outcomes:**
 - Provide every individual with easy registration through scan based
 - Store valid information of every individual who all are coming in and going out of the college campus for longer duration
 - Easy access to the records for any inspection in future.
 - Reduce paper work.

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		<input checked="" type="checkbox"/>	
Timing risk			<input checked="" type="checkbox"/>
Budget risk	<input checked="" type="checkbox"/>		

A1. Comments(Describe the risk):

Technical Risk:

There could be a technical issue like the android version which we are currently using could come up with new updates and version which might be difficult for us. But as an IT person we will overcome with these problems and come up with solutions.

Time Risk:

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

Budget Risk

- Since there is no involvement of budget in our project so we estimated it to low.

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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

(Project schedule using MS-Project (or similar tools) with all tasks, deliverables, milestones, clearly indicated are preferred. Task should be measured in terms of hours)

13. Report Writing Guidelines

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

Bibliographie

[1] Royal Government of Bhutan, Retrieved from <http://www.moh.gov.bt/druk-trace-app-policy/>

[2] Heaney. J., (April 25, 2019). *What is the Importance of Record Keeping?* Retrieved from <https://waldenenvironmentalengineering.com/environmental-services-blog/the-importance-of-record-keeping/>

[3] Winter, M. (2011). *Scan me-Everybody's guide to the magical world of Qr codes*. Westsong Publishing.