



Proposal
For
Second Year Project
Gyalpozhing College of Information Technology
Royal University of Bhutan
Bachelor of Science in Information Technology

Unit Converter

Submitted by
BIK RAM CHUWAN (12190042)

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.

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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

Sonam wangmo
sonamwangmo.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:			
Unit Converter			
C. Project Internal Guide:			
Name:	Ms. Sonam Wangmo		
Designation:	Assistant Lecturer		
Organization:	Gyalpozhing College of Information Technology		
Mobile # :	17715831	Tel. # :	
Email:	sonamwangmo.gcit@rub.edu.bt		
C1. Project External Guide:			
Name:	NA		
Designation:			
Organization:			
Mobile # :		Tel. # :	
Email:			
C2. Student:			
Name:	Bikram Chuwan		
Roll No:	12190042		
Department:	Bachelor of Science in Information Technology		
Mobile # :	17583585	Tel. # :	
Email:	<u>12190042.gcit@rub.edu.bt</u>		

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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
	Gyalpozhing College of Information Technology	

D3. Funding Organizations:

#	Organization Name	Role / Contribution
	NA	

E. Key Words:

(Please provide a maximum of 5 key words that describe the project. The key words will be incorporated in our database.)

Offline application,
Easy unit conversion,
Include various aspect of conversions,
Appropriate conversion of metric values,
Conversion at a instant time.

F. Research and Development Theme:

To provide a user-friendly tool that can be used as an interface for simple metric unit conversions. This software can support users who are having trouble translating metric values, as it can help them save time and effort by reducing manual calculations. Furthermore, as compared to the already used app, this app will have more precise results and accurate translations with no mistakes and a user-friendly gui that works.

G. Project Status:

(Please mark ☒)

- ☒ New Modification to previous Project
Extension of existing project

• **Project Duration:**

Expected Starting Date: 9th February 2021

Planned Duration in months: 4 months

2. Scope, Introduction and Background of the Project

A. Scope of the Project:

System Scope

Unit converter is an android app which will include the following features:

Distance: Here it is for distance conversion, the user can enter a value to get their desired distance.

Volume: The user should enter a value and choose which volume transfer method they prefer.

Time: The user will enter a value/input and choose whatever time conversion they want.

Speed: In speed, the user will enter value and choose which type of speed they want the result to take.

Temperature: It is mostly used to validate temperature conversions, allowing the user to enter a value and choose either temperature conversion type.

Digital Storage: It is for testing the conversion of the storage that we have in our

computing devices, so the user can insert a value and pick from a range of options to convert it to digital storage.

Area: Here the user can get the conversions of area.

Weight: Here the user can get the conversions of any forms of weight.

Feedback/rate us: Here, the user can have reviews and even rate the app.

User Scope

Unit converter is an android mobile application that targets the population of Bhutan.

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

*(Detailed summary of what all has been done internationally in the proposed area quoting references and bibliography. Please note that this section demonstrates the depth of knowledge of the project team and builds the confidence of the evaluators about capability of the team in achieving the stated objectives.)
(Please describe the current state of the art specific to this research topic.)*

People in today's world are too confident and eager to get a simple way of everything that surrounds them. With this in mind, they want quick access to solutions to all of their issues. Similarly, solving mathematical problems such as determining an area, size, and other factors is difficult and time-consuming for them to do on their own due to the lengthy process. Students of schools, universities, and other institutions are having trouble estimating all of the requisite conversions, whether they are quantitative or experimental conversions.

Also in the commercial world, manual conversion has had a significant impact; transforming units are not only essential but also critical aspects of maintaining a business standard. People quantify in various ways in different parts of the world, for example, in western countries, they use pounds, inches, and miles, while in other parts of the world, they use kilograms to weigh weight and centimeters to determine height and the kilometer to quantify width, it is difficult for those without prior experience to translate both types of metric

conversions.

As a result, I've devised a unit converter to address those concerns. The unit converter is an Android-based Smartphone application that allows users to convert some form of metric conversion. The user will enter a value and convert it to some kind of metric conversion using this app. This software would assist the consumer in collecting reliable and timely information with appropriate conversion without having to calculate the metrics themselves.

Literature Review:

According to the research “: An Examination of Prospective Science Teachers’ Knowledge of and Difficulties with Conversion” conducted by Emrah Oguzhan Dincer, Aslihan Osmanoglu which was basically done by Department of Mathematics and Science Education, Faculty of Education, Trakya University, Edirne, Turkey in 2018, where they conducted research with the main purpose of deciding whether science teachers and students would convert metric units. The research was conducted by investigation using queries, and they learned that many students had trouble converting metric units, and even teachers are uncertain about teaching/doing the conversion of metric units especially the conversions from gram to microgram, mg to g, quart to gallon, dm³ to mm³, and so on.

In the paper titled “Android based conversion and estimation” by Dr.Muhammad Zubair Asghar and his four friends in the year 2016, The key goal was to create an application that could help software developers quantify project costs, commitment, and upkeep. It was also to aid in the effective and straightforward application of various conversion metrics. Their conversion primarily dealt with the conversion of various metrics from one unit to another, such as weight, distance, and temperature. Even for automated cost estimating conversion using CoCoMo I and CoCoMo II. In user-friendly mode, the program produces reliable data.

Some of the Apps:

-The “Unit Converter” app was built with the intention of translating metric units such as weight, size, and distance, as well as features such as distance, area, weight, temperature, length, strength, temperature, speed, force, energy, pressure, cooking, heat, and digital storage.

-The “all unit converter” app also had features for converting metric units, including mass/weight, length, area, volume, temperature, electricity, energy, distance, time, strength, data size, and so on.

Current State of the Art

Currently, no such platform has been built in the country for the sole purpose of converting a unit metric. However, similar applications were created and released by people from other nations. Many problems were discovered by the user when using those applications for translating unit metric values, such as less user friendly and inaccurate conversion of unit value while converting, and many errors were discovered by the user in terms of precision when converting those metric values. Even after upgrading to newer versions, some parts of the app were still not running properly. Following the identification of the problems encountered in the preview created app, this app will assist users in converting unit metrics with zero errors in terms of accuracy and is more user friendly than the previously used converter software.

C. Challenges:

(Please describe the challenges, specific to this research topic, currently being faced internationally.)

Keeping the plans on track: Completing the mission in a timely manner.

Hardware and software faults or crashes: Whether the hardware or software fails or crashes, it can cause issues.

Security concerns: When creating an app, security concerns will arise.

D. Motivation and Need:

(Please describe the motivation and need for this work.)

This type of multi-converting software can help users, especially students and other business purpose, convert all types of metric conversions without having to do so manually. This can save time and effort, and users can get immediate and accurate results for their problems. It can be an effective tool for conversions, as well as a user-friendly gui with no conversion accuracy issues.

3. Aim and Objectives of the Project

(Please write the actual aim of your project. Also, describe the measurable objectives of the project and define the expected results. Use results-oriented wording with verbs such as 'to develop..', 'to implement..', 'to research..', 'to determine..', 'to identify..'. The objectives should not be statements and should not include explanations and benefits. The objective should actually specify in simple words what the project team intends to achieve (something concrete and measurable/ deliverable). Fill only those objectives that are applicable to the proposed project.)

Aim:

“Create a user-friendly interface that allows users to transform any unit metric conversion.”

Objectives:

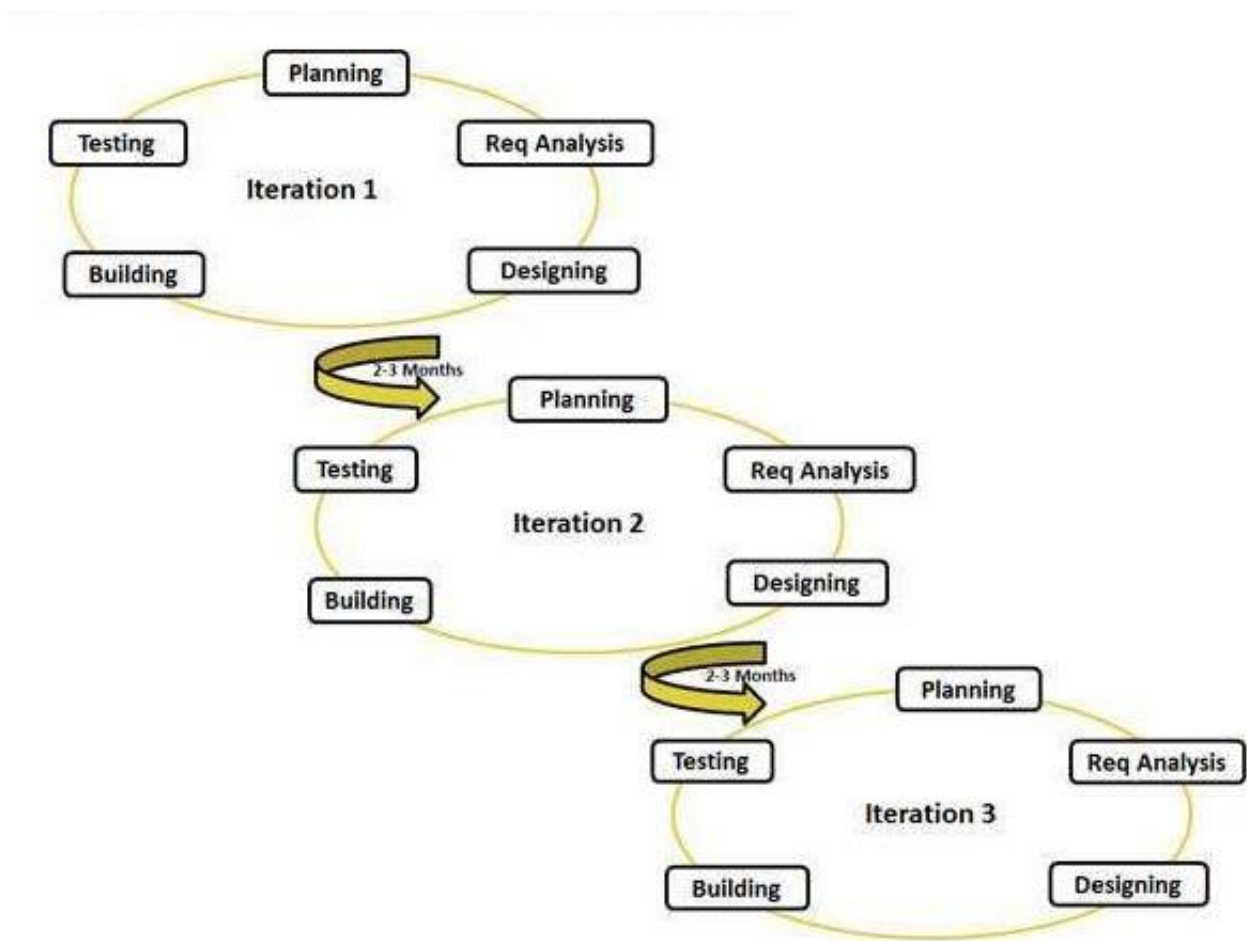
- To build a conversion app that is easy to use.
- Provide the user with a simple platform for unit conversion.
- To provide correct and effective conversions in the shortest time possible.

4. Methodology

A. Development / Research / Test Methodology:

(Please describe the technical details and justification of your development and research plan and test plan and testing strategies. Identify specialized equipment, facilities and infrastructure which are required for the project and their utilization plan. The block diagrams, system flow charts, high level algorithm details etc. have to be provided in this section. Also, describe the overall methodology to be used for the particular research topic)

The development model that we will be using for our project is Agile Model.



The agile model is a fusion between iterative and gradual process models that stresses process adaptability through rapid development of working applications. It splits the substance into small bits that can be added to over time. Iterations of these builds are available. It promotes adaptability in the face of transition.

Phases of Agile model:

1. Planning

This phase would include a summary of the project's general concept and challenges, as well as an outline.

2. Requirement gathering and analysis

The criteria can be collected in a number of areas, including prior academic papers and polls. The dilemma will be explored in more depth after the criteria have been collected. The specifications would then be documented in an SRS manual (Software Requirement Specification).

3. Design

The project's design will be based on the specifications identified in the previous process. The project's design will be incorporated along with its development.

4. Implementation/Coding

The project's execution will begin with feedback from the design process.

5. Testing

Following growth, each feature will be evaluated using various testing methods. we can still go back and check from the previous process whether any feature isn't working properly.

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.

1. Project Team:

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

C. 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 and database server for the development of the app.

2. Gathering requirements:

Collect the needed app details from a number of means, such as book references, video guides, etc.

3. Design phase:

Using the knowledge gathered in the previous process, this phase is entirely dedicated to developing the app's user interface, database design, and architectural design.

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 process.

6. Final Documentation:

After all the phases are completed, there will be preparation of the documentation and final report.

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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	09/02/2021-20/02/2021	Topic selection	Confirmation project topic
2	21/02/2021-13/03/2021	Problem statement, Literature review	Literature review
3	14/03/2021-25/03/2021	Requirement gathering and analysis	Requirement gathering
4	26/03/2021-8/04/2021	Design	Architectural design, User Interface design, Database design, Prototype, ER diagram, Relational diagram
5	9/03/2021-3/04/2021	Implementation/Coding	Source code and functional features implemented
6	4/04/2021-15/05/2021	Testing	Test case (Unit testing, Integration testing, System testing, Acceptance testing)
7	17/05/2021-24/05/2021	Final documentation	Complete android app

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

Expected output:

- An android mobile app that can convert any metric units.
- Final individual project result

Expected outcomes:

- Provides a user-friendly platform that can provide the user with a simple unit conversion.
- The platform that can provide correct and effective conversions in the shortest time possible
- A dependable platform that can provide users with zero errors and correct functionality.

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: Because the technology required to develop the app is unavailable, there

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is a medium technical risk. There is also a high risk of hardware and even software failure, which could result in the system crashing.

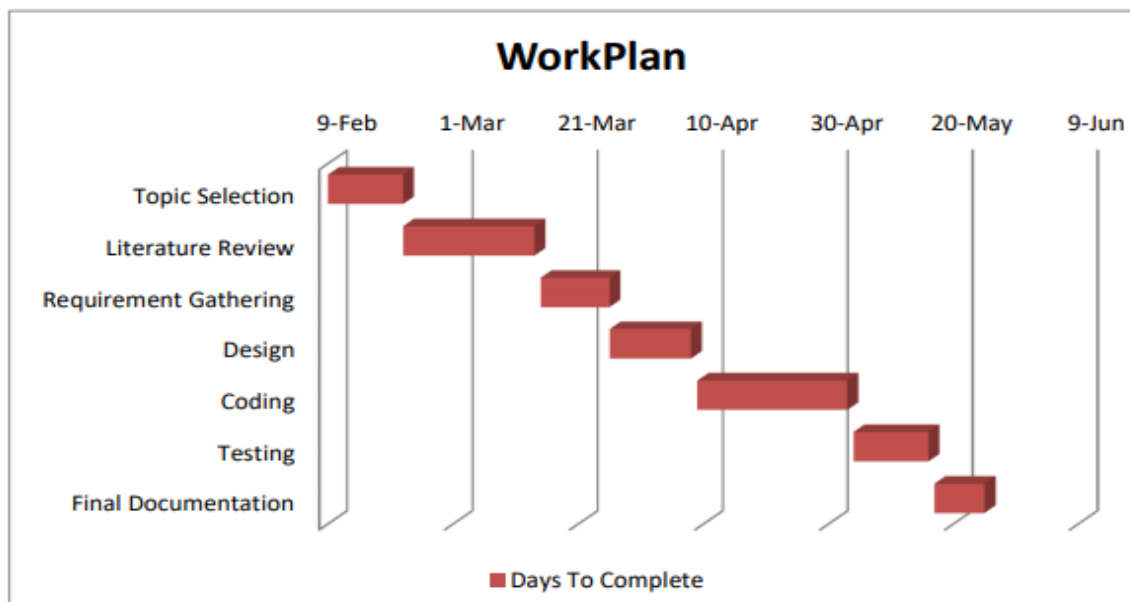
Timing risk: There is a high risk of timing risk because we cannot guarantee that we will be able to complete the project on time.

Budget risk: This project has no budget danger since we will create the app using free software that is readily accessible.

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)

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.)

Bibliography

Dincer, E. O., & Osmanoglu, A. (2018). Dealing with Metric Unit Conversion: An Examination on Prospective Science Teachers' Knowledge of and Difficulties with Conversion. *Science Education International*, 29(3).

Asghar, M. Z., Gul, F., & Fakher, S. (2015). Android based Conversion and Estimation Application.

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