

**Tribhuvan University**

**Mechi Multiple Campus**

**A Final Year Internship Report**

**On**

**“Website Development and Mobile Application Development”**

**At**

**Mechi Multiple Campus**

**Under the Supervision of**

**Mr. Krishna Prasad Acharya**

**Submitted To**

**Department of Computer Application**

**Mechi Multiple Campus**

***In partial fulfillment of the requirement for the Bachelor Degree in Computer Application***

**Submitted By**

**Nischal Khatiwada (Symbol No:1702021)**

**February 28,2022**

An Internship Report

on

Web and Android application development, Mechi Multiple Campus

Submitted in partial fulfilment of the requirement of

Internship (CAIN 403)

of

Bachelor of Computer Application

**Submitted To**

Tribhuvan University

Biratnagar, Nepal

**Submitted By**

Nischal Khatiwada

Symbol No: 020021

TU-Reg-no: 6-2-0002-0021-2017

**Project Supervisor**

Krishna Prasad Acharya

**Mechi Multiple Campus**

Bhadrapur, Jhapa

February 28,2022

# Supervisor’s Recommendation

We hereby recommend that the report prepared under our supervision by Girija Bhattarai, Dipesh Rajbanshi and Nischal Khatiwada entitled **“Website Development and Mobile Application Develpment”** at **“Mechi Multiple Campus”** in partial fulfillment of the requirements for the degree of Bachelor in Computer Application be processed for evaluation.

…………………..…….

**Mr. Krishna Prasad Acharya**

Mechi Multiple Campus

Bhadrapur, Jhapa

# Certificate of Approval

This is to certify that this project prepared by Girija Bhattarai, Dipesh Rajbanshi and Nischal Khatiwada entitled “**Website Development and Mobile Application Develpment**” in partial fulfillment of the requirements for the degree of Bachelor in Computer Application has been well studied. In our opinion, it is satisfactory in the scope and quality as an internship for the required degree.

|  |  |
| --- | --- |
| ------------------------------------------------  **Krishna Prasad Acharya**  Internship Supervisor,  Mechi Multiple Campus  Bhadrapur, Jhapa | ------------------------------------------------  **Krishna Prasad Acharya**  BCA Director  Mechi Multiple Campus  Bhadrapur, Jhapa |
| -------------------------------------  **External Examiner**  Department of Humanities and Social Sciences  Tribhuvan University  Kirtipur, Nepal | |

# Acknowledgement

We would like to express our gratitude with much appreciation to the most respected and esteemed Internship Mentor **Mr. Krishna Prasad Acharya** and the team that gives us immense pleasure to express our deepest sense of gratitude and sincere thanks to him who had given his full effort in guiding us during the internship period including all the team members of **Mechi Multiple Campus.**

It is a great pleasure to have the opportunity to extend our heartfelt gratitude to everyone who helped us throughout the course of this project. We would like to express our profound gratitude to our supervisor **Mr. Ridip Khanal** for his guidance and support in each step for the progress of this project. His continuous inspiration and valuable suggestions have made us complete this project and achieve its target.

We would like to express our sincere gratitude towards the **Department of Humanities and Social Sciences, Mechi Multiple Campus** for providing us with the wonderful opportunity, encouragement and environment to explore our skills and gain learning experience through this internship opportunity.

We would also like to express our deepest appreciation to **Mr. Krishna Prasad Acharya,** Program Director, Mechi Multiple Campus for his constant motivation, support and for providing us with a suitable working environment.

Last but not the least, we would like to thank all the faculty members and friends who has direct and indirect contribution to our project. Any kind of suggestions or criticism will be greatly appreciated and acknowledged.

Sincerely.

Nischal Khatiwada (T.U. Regd. No. 6-2-2-21-2017)

# Abstract

Internship is an opportunity to get exposure to the real world and collect the experiences to tackle challenges in the future career paths. Internship is the platform to convert theoretical knowledge gained at college life to practical experiences enhancing skills and knowledge base to extend competency in CV. Mechi Multiple Campus has provided wonderful platform to extend the skills and work ethics during the internship period.

The world we are today is rapidly changing in every sector like technology, finance, scientific discoveries and much more. Nowadays there is an increasing interest in mobile application and website development. However, developers often disregard, or at least significantly adapt, existing software development processes to suit their purpose, given the existing specific constraints. Such adjustments can introduce variations and new trends in existing processes that in many occasions are not shared with the scientific community since there is no official documentation, thus justifying further research.

Therefore, the aim of this project is to present a study and characterization of current mobile application development and website development processes based on a practical experience. We consider a set of real case studies to investigate the current development processes for mobile applications as well as websites used by software development companies, as well as by independent developers. The result of the present study is the identification of mobile and website development processes, namely agile approaches, and also of shortcomings in current methodologies applied in industry and academy, namely the lack of informed and experienced resources to develop mobile apps and websites.

Table ofContents

[Supervisor’s Recommendation 3](#_Toc96806166)

[Certificate of Approval 4](#_Toc96806167)

[Acknowledgement 5](#_Toc96806168)

[Abstract 6](#_Toc96806169)

[Chapter 1. Introduction 8](#_Toc96806170)

[1.1 Introduction 8](#_Toc96806171)

[1.2 Problem Statement 8](#_Toc96806172)

[1.3 Objectives 8](#_Toc96806173)

[1.4 Scope and Limitation 9](#_Toc96806174)

[1.5 Report Organization 9](#_Toc96806175)

[Chapter 2. Introduction To Organization 11](#_Toc96806177)

[2.1 Organization Details 11](#_Toc96806178)

[2.2 Organizational Hierarchy 12](#_Toc96806179)

[2.3 Working Domains of Organization 13](#_Toc96806180)

[2.4 Description of Intern Department/Unit 13](#_Toc96806181)

[Chapter 3. Background Study And Literature Review 14](#_Toc96806182)

[3.1 Background Study 14](#_Toc96806183)

[3.2 Literature Review 14](#_Toc96806184)

[Chapter 4. Internship Activities 17](#_Toc96806185)

[4.1 Roles and Responsibilities 17](#_Toc96806186)

[4.3 Description of the Project involved during Internship 17](#_Toc96806187)

[4.4 Tasks/Activities Performed 17](#_Toc96806188)

[4.2 Weekly log 17](#_Toc96806189)

[Chapter 5. Conclusion and Learning Outcomes 18](#_Toc96806190)

[5.1 Conclusion 18](#_Toc96806191)

[5.2 Learning outcomes 18](#_Toc96806192)

# Chapter 1. Introduction

## **Introduction**

This proposal is made by the group of students of BCA with the objective to develop a web application and an android application for Mechi Multiple Campus. Working together, I believe we can create dynamic website that is simple to navigate and has a professional, yet welcoming design and an android app that enhances the digital portability of the entire organization.

Our dedicated team uphold the highest standards for project planning, development, and execution, and we are determined to build a perfect website and android app for Mechi Multiple Campus on-time and on-budget.

In this proposal, you will find what we feel is the best solution for your web and android development needs, along with the associated cost, delivery timeline, and project terms and conditions.

## **Need**

Mechi multiple needs a full web app built to support the digital growth strategy and to update its presence in the web. The web app should have the efficiency to be regularly operated by a person with basic IT knowledge. The website should be dynamic so that the information displayed in the app could be changed easily by the operator.

Furthermore, Mechi Multiple campus also needs an android app to add portability of its digital information sharing system and to preserve its presence in the digital world in which mobile apps are being popular day by day. The android app should have the ability to be maintained by a employee without the need to regularly employ the developers to make change.

## **Solution**

We will provide Mechi Multiple Campus with a fresh web design that is easy to navigate and provides useful information for the students and staffs. The design will convey all the visitors that Mechi Multiple Campus is a professional and reliable educational organization. The design will integrate the current logo of Mechi multiple campus so it will maintain a familiar look, but will at same time show that Mechi Multiple Campus is improving its web presence.

Similarly, we will build an android app that contains every feature of the web app so that they can be accessed any time at any place with a mobile device.

## **Objectives**

The objective of this project is as follows:

1. To develop a web application that could simulate the process according to the strategy on the environment of the organization.
2. To enhance the system so that it provides necessary information regarding the organization.
3. To provide the mobile version of the system and increase portability with the help of android development.

# Chapter 2. Project description

## **2.1 Main Layout**

Both the web app and android app shall have the following pages:

* Home
* Blog
* About us
* Gallery
* Course
* Download
* Contact
* Notice

((picture))

## **2.2 Organizational Hierarchy**

The organizational hierarchy is established so that the existing entity can operate and help to achieve its objectives and goals viably. It is the organizational structure that has the authority to outline task allocation, coordination, and supervision and how they should be directed. In an organizational hierarchy, everyone collectively works towards achieving only the company goals and objectives without deviating from their path.

The organizational hierarchy of the organization is shown as below:-

## **2.3 Working Domains of Organization**

The Mechi Multiple Campus offers 8 undergraduate programs and 2 Postgraduate programs. The three undergraduate programs are handled by the Department of Information Technologywhich include BSc in Computer Science and Information Technology (BSc CSIT), Bachelor of Computer Application (abbreviated BCA), and Bachelor of Information Management (BIM). Department of IT also manages overall IT and networking infrastructure of campus.

## **2.4 Description of Intern Department/Unit**

All the IT related programs and department in campus are run and handled by Department of IT. It also handles the domain of network and computer lab. The IT department oversees the installation and maintenance of computer network systems within a campus. IT department coordinate and supervise the installation, maintenance, and support of existing and new servers, systems and networks.

# Chapter 3. Background Study And Literature Review

## **3.1 Background Study**

Internship is a position facilitated to a student working in an organization for the purpose of enriching skills with work experience and satisfy requirements for a qualification required at the right job. Internship offers meaningful practical works related to a student's field of study and career interest. Internship helps students learn with the mentor who can provide guidance, feedback, receptiveness and models professionalism.

Internship offers exposure to students in the real world and develop professional contacts. Learning an organizational environment along with orientation to the company, management, customers is the motto for an internship.

Internships can be beneficial to the company too. Interns can ease the workload of regular employees, developers and remain focused on higher level task to fulfill and organizational aim. Internships help meet short-term staffing needs, assure timeliness completion of projects, develop a pipeline of future employees and prepare tomorrow's workforce. Sometimes, interns can inject enthusiasm and fresh ideas into your organization.

## **3.2 Literature Review**

**3.2.1 Literature Review of System 1**

Internet usage has increased tremendously and rapidly in the past decade (“Internet Use Over Time,” 2014). Websites have become the most important public communication portal for most, if not all, businesses and organizations. As of 2014, 87% of American adults aged 18 or older are Internet users ([“Internet User Demographics,” 2013](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4974011/#R26)). Because business-to-consumer interactions mainly occur online, website design is critical in engaging users ([Flavián, Guinalíu, & Gurrea, 2006](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4974011/#R19); [Lee & Kozar, 2012](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4974011/#R28); [Petre, Minocha, & Roberts, 2006](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4974011/#R35)). Poorly designed websites may frustrate users and result in a high “bounce rate”, or people visiting the entrance page without exploring other pages within the site ([Google.com, 2015](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4974011/#R21)). On the other hand, a well-designed website with high usability has been found to positively influence visitor retention (revisit rates) and purchasing behavior ([Avouris, Tselios, Fidas, & Papachristos, 2003](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4974011/#R4); [Flavián et al., 2006](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4974011/#R19); [Lee & Kozar, 2012](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4974011/#R28)).

Little research, however, has been conducted to define the specific elements that constitute effective website design. One of the key design measures is usability ([International Standardization Organization, 1998](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4974011/#R24)). The International Standardized Organization (ISO) defines usability as the extent to which users can achieve desired tasks (e.g., access desired information or place a purchase) with effectiveness (completeness and accuracy of the task), efficiency (time spent on the task), and satisfaction (user experience) within a system. However, there is currently no consensus on how to properly operationalize and assess website usability ([Lee & Kozar, 2012](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4974011/#R28)). For example, Nielson associates usability with learnability, efficiency, memorability, errors, and satisfaction ([Nielsen, 2012](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4974011/#R33)). Yet, [Palmer (2002)](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4974011/#R34) postulates that usability is determined by download time, navigation, content, interactivity, and responsiveness. Similar to usability, many other key design elements, such as scan ability, readability, and visual aesthetics, have not yet been clearly defined ([Bevan, 1997](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4974011/#R7); [Brady & Phillips, 2003](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4974011/#R11); [Kim, Lee, Han, & Lee, 2002](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4974011/#R27)), and there are no clear guidelines that individuals can follow when designing websites to increase engagement.

This review sought to address that question by identifying and consolidating the key website design elements that influence user engagement according to prior research studies. This review aimed to determine the website design elements that are most commonly shown or suggested to increase user engagement. Based on these findings, we listed and defined a short list of website design elements that best facilitate and predict user engagement. The work is thus an exploratory research providing definitions for these elements of website design and a starting point for future research to reference.

**3.2.2 Literature Review of System 2**

The [mobile devices](https://www.sciencedirect.com/topics/computer-science/mobile-device) being utilitarian, user-friendly, accessible has made it the most popular and indispensable expedient for human essentials from the past few years ([Malavolta et al., 2015](https://www.sciencedirect.com/science/article/pii/S1319157818306074" \l "b0280)). Mobile software developers’ are driven to release software on time and within budget. Software estimation plays a pivotal role in providing the most accurate sizing figure for building confidence in developers and stakeholders relationship ([Soares and Fagundes, 2017](https://www.sciencedirect.com/science/article/pii/S1319157818306074" \l "b0375)). Many approaches used for estimation of traditional software are adapted for mobile application development and testing ([Wasserman, 2010](https://www.sciencedirect.com/science/article/pii/S1319157818306074" \l "b0435)).

The testing phase of traditional software development proceeds through additional life cycle called Software Testing Life Cycle (STLC) ([Katherine and Alagarsamy, 2012](https://www.sciencedirect.com/science/article/pii/S1319157818306074" \l "b0220)). According to [Gao et al. (2014)](https://www.sciencedirect.com/science/article/pii/S1319157818306074" \l "b0165) mobile software testing are set of activities for mobile apps on mobile devices by exhausting definite software test techniques and tools in order to confirm quality in functionality, performance, and QoS, as well as features, like mobility, usability, interoperability, connectivity, security and privacy. The main phases of the testing process include test planning, test designing, test execution and test analysis ([Farooq et al., 2011](https://www.sciencedirect.com/science/article/pii/S1319157818306074" \l "b0145), [Amen et al., 2015](https://www.sciencedirect.com/science/article/pii/S1319157818306074" \l "b0275)).

The estimation of effort for software testing comprises an estimation of test size, effort (Person per Hour), cost and entire schedule by means of several methods, tools and techniques ([Abhilasha and Sharma, 2013](https://www.sciencedirect.com/science/article/pii/S1319157818306074" \l "b0010)). If effort, time and cost required to test the software can be anticipated, the testing resources can be systematically planned within a set target date to ensure lucrative culmination of projects. According to [Zhu et al. (2008b)](https://www.sciencedirect.com/science/article/pii/S1319157818306074" \l "b0470), for estimating the test effort the major consideration is given on test designing (creation of test cases) and test execution.

With the advent of [Agile Software Development](https://www.sciencedirect.com/topics/computer-science/agile-software-development) (ASD) ([Usman et al., 2014](https://www.sciencedirect.com/science/article/pii/S1319157818306074" \l "b0410)) entire software development community has been driven by the adoption of [agile methodology](https://www.sciencedirect.com/topics/computer-science/agile-methodology). The Agile approach to mobile application development states an iterative and [incremental approach](https://www.sciencedirect.com/topics/computer-science/incremental-approach) comprising self-organizing teams and cross-functioning teams working together to build the software ([Kaur, 2016](https://www.sciencedirect.com/science/article/pii/S1319157818306074" \l "b0225)). The prominent existing agile mobile application development approaches are MOBILE-D, RaPiD7, Hybrid methodology, MASAM, Scrum with Lean [Six Sigma](https://www.sciencedirect.com/topics/computer-science/six-sigma) (SLeSS) ([Dewi and Nur Atiqah Sia, 2015)](https://www.sciencedirect.com/science/article/pii/S1319157818306074" \l "b0140). The Agile espousal to mobile application development is considered as a natural fit by many researchers ([Cunha et al., 2011](https://www.sciencedirect.com/science/article/pii/S1319157818306074" \l "b0110), [Rahimian and Ramsin, 2008](https://www.sciencedirect.com/science/article/pii/S1319157818306074" \l "b0345), [Scharff and Verma, 2010](https://www.sciencedirect.com/science/article/pii/S1319157818306074" \l "b0350)). In an agile environment, development and testing are not considered separate phases as in traditional software development ([Rahimian and Ramsin, 2008](https://www.sciencedirect.com/science/article/pii/S1319157818306074#b0345)). The estimation of software in agile is prepared for both development and testing together. Estimation of effort in [agile development](https://www.sciencedirect.com/topics/computer-science/agile-development) is a new area of focus and very less work is reported literature ([Aslam et al., 2017](https://www.sciencedirect.com/science/article/pii/S1319157818306074" \l "b0065)).

# Chapter 4. Internship Activities

## **4.1 Roles and Responsibilities**

During the three-month internship at Mechi Multiple Campus there was involvement in various activities and tasks as per the requirement of both the organization and the project. Following are the roles and responsibilities that were assigned for me.

* Analysis and research on the organization.
* Research on previous systems
* Developing the required terms and conditions for project
* Front End design for the admin panel of web application
* Back End implement for the admin panel of web application

## **4.3 Description of the Project involved during Internship**

Internship projects are tasks or activities that interns complete while working with a company or organization. Individuals may apply to internships to gain real-world experience and additional skills to help with future roles.

The project ideas that can be implemented in the organization can be listed as follows:-

* Complete regular tasks.
* Propose solutions to a current problem.
* Organize digital documents.
* Develop support material.

## **4.4 Tasks/Activities Performed**

* Analysis and research on the organization.
* Contributions and suggestions to the fellow team members.
* Front End design for the admin panel of web application
* Back End implement for the admin panel of web application

## **4.2 Weekly log**

Weekly log Summarize work activities for the week. The weekly log that describes different activities and task completed in weekly basis is attached with this document.

# Chapter 5. Conclusion and Learning Outcomes

## **5.1 Conclusion**

Internship programs have been helpful for students in bridging the gap between industry and academia. It is an opportunity to develop and enhance technical knowledge for the growth of a career. The real-world implementation and challenges are known and the technical implementations are no more jargons to those who utilize the internship period as a good platform and opportunity.

The internship at Mechi Multiple Campus has been a wonderful platform to enhance the skills related to time management, working in a team, meetings and feedback from each individuals or the members of the organization who has even helped to improve the communication skills. Due to the current pandemic situation, the internship has provided a new experience to work with the team from every corner of the world. The knowledge on development sector as per the context of modern technology on the uses on development fields creating websites as well as mobile applications are the aspects of improvement from the internship program.

The developed system can provide basic information regarding the organization which generates more useful methods on the basis of giving the newly updates on the basis of the services or the facilities provided by the organization.

## **5.2 Learning outcomes**

Upon successful completion of this system, I learned:

* Experience of applying existing web app designing knowledge in an industrial context.
* Ability to identify when new technical knowledge is required, and apply it.
* Ability to integrate existing and new technical knowledge for industrial application.
* Ability to demonstrate technical competencies.
* Understanding of lifelong learning processes through critical reflection.