



**FINAL YEAR PROJECT REPORT**  
**GEO LOCATION BASED BUILDING  
DETECTION SYSTEM**

**In fulfillment of the requirement  
For degree of  
BS (COMPUTER SCIENCES)**

**By**

**HAMZA**

**54129 BSCS**

**SYED M.TALAL TAHIR**

**54191 BSCS**

**ABDUL MOID**

**54054 BSCS**

**SUPERVISED**

**BY**

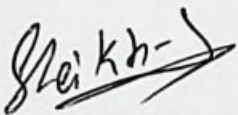
**DR. GHULAM MUHAMMAD**

**BAHRIA UNIVERSITY (KARACHI CAMPUS)**

**FALL-2022**

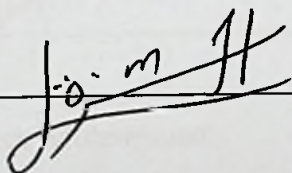
## DECLARATION

We hereby declare that this project report is based on our original work except for citations and quotations which have been duly acknowledged. We also declare that it has not been previously and concurrently submitted for any other degree or award at Bahria University or other institutions.

Signature : 

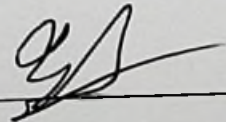
Name : Abdul Moid

Reg No. : 54054

Signature : 

Name : Hamza

Reg No. : 54129

Signature : 

Name : Syed Muhammad Talal Tahir

Reg No. : 54191

Date : 31/1/22

The copyright of this report belongs to Bahria University as qualified by Intellectual Property Policy of Bahria University BUORIC P-15 amended April 2019. Due acknowledgement shall always be made of the use of any material contained in, or derived from, this report.

© Bahria University all rights reserved.

## ACKNOWLEDGEMENTS

We would like to thank everyone who had contributed to the successful completion of this project. We would like to express my gratitude to my research supervisor, **Dr Ghulam Muhammad** for his invaluable advice, guidance and his enormous patience throughout the development of the research.

In addition, we would also like to express my gratitude to our loving parent and friends who had helped and given me encouragement.

## ABSTRACT

People nowadays enjoy traveling and exploring different historical or unique structures. However, in order to satisfy this intense curiosity, they must complete many tasks, namely, they must first search each building and then gather information so that they can **determine whether or not the building is the one they are looking for**. And once they have found what they desired to, the next possible question is how do they reach the destination an **what will be the shortest path?** And they experience rigorous **time consumption** while completing all of these tasks. This app will act as a platform for them, allowing them to solve all of the problems mentioned above. The goal of this project is to provide building detection services using machine learning algorithms, which means it will be able to detect the image of any building and display data (some history and relevant information) as well as the path (via integration with Google Maps API) of that building that a user wants to know about and travel to. It will be an android-based application that uses machine learning to process large amounts of data in order to attain improved accuracy. The simplicity of this application allows users to reach their goals with just a few clicks, all that is necessary is an internet connection and the loaded application. Our main goal in developing this application is to improve its accuracy and efficiency, which will save users time because "**satisfied customers contribute to a better product.**"

## Table of Contents

CHAPTER 1 .....		11
<b>1 INTRODUCTION</b>		<b>11</b>
1.1 Background		11
1.2 Problem Statements		12
1.3 Aims and Objectives		12
1.4 Scope of Project		13
1.5 Technology & Tools:		14
CHAPTER 2 .....		15
<b>2 LITERATURE REVIEW</b>		<b>15</b>
CHAPTER 3 .....		19
<b>USAGE SCENARIO / USER INTERACTION</b>		<b>19</b>
3.1 User profiles:		19
3.2 Use-case		20
CHAPTER 4 .....		21
<b>FUNCTIONAL AND DATA DESCRIPTION</b>		<b>21</b>
4.1 System Architecture:		21
4.2 Architecture model:		22
4.3 Subsystem overview:		23
4.4 Data Description:		23
4.5 Major data objects:		23
CHAPTER 5 .....		24
<b>MODULES DESCRIPTION</b>		<b>24</b>
5.1 Description for Subsystem "image detection":		24
5.2 Subsystem scope:		24
5.3 Subsystem flow diagram/ desired UML diagram:		25
5.4 Restrictions/limitations:		25
5.5 Performance issues:		25

5.6	Description for Subsystem “Geolocation API”:	25
5.7	Subsystem scope:	25
5.8	Subsystem flow diagram/ desired UML diagram:	26
5.9	Restrictions/limitations:	26
5.10	Performance issues:	26
CHAPTER 6 .....		27
<b>BEHAVIORAL MODEL AND DESCRIPTION</b>		<b>27</b>
6.1	System behaviour:	27
6.2	State Transition Diagram:	28
6.3	Code Implementation (Predict.py)	29
6.4	Training and Testing	30
CHAPTER 7 .....		311
<b>DESIGN AND METHODOLOGY</b>		<b>311</b>
7.1	Methodology used in this project	311
7.1.1	Agile	32
7.1.1.1	Advantages of Agile	32
7.1.2	SCRUM	33
7.1.2.1	Working of Scrum	34
7.1.2.1.1	Roles	34
7.1.2.1.2	Artifacts	35
7.1.2.1.3	Time Boxed Events	36
7.2	Mockups	38
7.3	ERD Diagram	42
7.4	Computer Programming language	42
CHAPTER 9 .....		43
<b>Test Cases</b>		<b>46</b>
CHAPTER 10 .....		46
<b>Conclusion &amp; Future Work</b>		<b>46</b>