**A PROJECT REPORT ON**

**UNIQUE BIO-IDENTIFICATION FOR HOME SECURITY ON IOT**

SUBMITTED TO SAVITRIBAI PHULE PUNE UNIVERSITY, PUNE

IN THE PARTIAL FULFILLMENT FOR THE AWARD OF THE DEGREE

OF

**BACHELOR OF ENGINEERING**

**IN**

**Informtion Technology**

**BY**

**mr. vAIBHAV KALE B120428532**

**mr. ROHIT KASHID B120428534**

**mr. MEGHAN NAGVEKAR B120428540**

**mr. BASWARAJ WALKE B120428567**

**Under The Guidance of**

**Prof. G.M. GAIKWAD**



**DEPARTMENT OF INFORMATION TECHNOLOGY**

**Sinhgad Institute of Technology, Lonavala**

**Gat No. 309/310, Kusgaon(Bk.),Off Mumbai-Pune Expressway,**

**Lonavala, Tal. Maval, Dist. Pune - 410 401**

**2017 - 2018**

CERTIFICATE

This is to certify that the Project Entitled

**UNIQUE BIO-IDENTIFICATION FOR HOME SECURITY ON IOT**

Submitted by

mr. vAIBHAV KALE B120428532

mr. ROHIT KASHID B120428534

mr. MEGHAN NAGVEKAR B120428540

mr. BASWARAJ WALKE B120428567

is a bonafide work carried out by Students under the supervision of PROF. G.M.GAIKWAD and it is submitted towards the partial fulfillment of the requirement of Bachelor of Engineering (Information Technology) Project.

This project report has not been earlier submitted to any other Institute or University for the award of any degree or diploma.

PROF. G.M.GAIKWAD PROF. T.J. PARVAT

Project Guide Head of Department

PROF. PROF. Dr.M.S.GAIKWAD

External Examiner Principal

Date: SIT LONAVALA

ABSTRACT

The document explains the importance of access to modern smart homes over the Internet, and highlights several security issues associated with it. In this work, we propose a two-step verification process for smart homes using a fingerprint i.e bio-identification and access credentials, which verifies the person and after owner accessing the home over the Internet. User fingerprint process is the very first verification process in our implementation. The sensor detects and creates the fingerprint image by determining the light and dark areas created by the fingerprint ridges .In this system, when a owner wants to access the home via the Internet, which requires the server access page, the server returns the login page with the Java fingerprint script. The user fingerprints are verified, if the verification is passed, then the gathered device fingerprint is analyzed to see if there are enough device fingerprinting parameters available to provide a comprehensive fingerprint of the user device.

**ACKNOWLEDGMENTS**

I have a great pleasure in presenting this report on “**UNIQUE BIO-IDENTIFICATION FOR HOME SECURITY ON IOT**” and to express my deep regards towards those who have offered their valuable time and guidance in our hour of need.

I would like to express our sincere and whole hearted thanks to my project guide and head of the department PROF. G.M. GAIKWAD and my PG coordinator PROF. F.S. GHODICHOR for contributing valuable time, knowledge, experience and providing valuable guidance in making this project a success.

I am also glad to express my gratitude and thanks to our Principal Dr. M.S.GAIKWAD for their constant inspiration and encouragement.

Finally, before ending I would like to express once again my gratitude and thanks to all my friends who are involved directly and indirectly in making my project success.

List of Figures

|  |  |  |
| --- | --- | --- |
| 1 | [Raspberry pi Module B](#page30)  . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | 13 |
| 2 | Fingerprint Sensor Module . . . . . . . .. . . . . . . . . . . . . . . . . . . . . . . . | 15 |
| 3 | Use case Diagram. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | 19 |
| [4](#page34) | Class Diagram. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | 20 |
| [5](#page36) | Sequence Diagram . . . . . . . . . . . .. . . . . . . . . . . . . . . . . . . . . . . . . . . . | 21 |
| 6 | Activity Diagram. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | 22 |
| 7 | Deployment Diagram. . . . . . . . . . . . . . . . . . . . . . . . . .. . . . .. . . . . . . | 23 |
| 8 | Architectural Diagram . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | 25 |
| 9 | Power Supply Diagram . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . | 28 |

**CONTENTS**

**CERTIFICATE ii**

**ABSTRACT iii**

**ACKNOWLEDGEMENT iv**

**LIST OF FIGURES v**

**CHAPTER TITLE PAGE NO.**

**1. INTRODUCTION 1**

**2. PROBLEM STATEMENT 4**

**3. LITERATURE SURVEY 6**

**4. REQUIREMENTS SPECIFICATION 10**

4.1 SOFTWARE REQUIREMENTS 11

4.1.1 PYTHON 11

4.1.2 PHP 12

4.1.3 APACHE TOMCAT 12

4.1.4 MYSQL 13

4.2 HARDWARE REQUIREMENTS 13

4.2.1 RASPBERRY PI 13

4.2.2 FINGERPRINT SENSOR MODULE 15

**5. SYSTEM DESIGN 18**

5.1 UML DIAGRAMS 19

5.1.1 USE CASE DIAGRAM 19

5.1.2 CLASS DIAGRAM 20

5.1.3 SEQUENCE DIAGRAM 21

5.1.4 ACTIVITY DIAGRAM 22

5.1.5 DEPLOYMENT DIAGRAM 23

**6. IMPLEMENTATION 24**

5.1 ARCHITECTURE 25

5.1.1 USER FINGERPRINTING PROCESS 26

5.1.1 DEVICE FINGERPRINTING PROCESS 26

5.1 DATA FLOW DIAGRAM 27

5.1.1 POWER SUPPLY 28

**7 CONCLUSION 31**

**8 SYSTEM EXECUTION 34**

**REFERENCES 39**