

# **Smart Home Appliance Control over Wi-Fi**

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Faculty of Information Technology

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# Declaration

I declare that this thesis is my own work and has not been submitted in any form for another Masters, Degree or diploma at any university or other institution of tertiary education. Information derived from the published or unpublished work of others has been acknowledged in the text and a list of references is given.

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# **Dedication**

This dissertation is dedicated to my beloved parents, my teachers, my friends who gave me endless courage and support to achieve my task and goal in completing the research project.

# **Acknowledgment**

My heartiest thanks go to my supervisor Mr. Saminda Premaratne for the guidance, assistance, encouragement, valuable bits of advice on improving the research and providing this opportunity to carry out this research project.

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# Abstract

The major purpose of this solution is to increase home security. Nowadays people are not staying at home for long hours and it becomes an issue for their loved ones who stays at home. Especially grand adults and children need more attention than the owners could be able to provide. This solution will provide a smart solution to the people who interest in having a security solution with new technologies.

The owner will notify via an email or message to the mobile phone if a person appears in front of the camera. If it is a family member, the owner will catch his/her arrival if not the owner will notify stranger's arrival. As well as owner can light up a bulb when a person comes in front of the camera. This reaction can be applied to in front of gates, as well as anywhere user wants. If the house owner needs to focus on more about children/senior adults safe will keep those near staircases when they try to use light up a bulb, then make a more secure environment.

Another advantage of this solution is it helps to get updates about home security when they are far away from residency. For this solution only need the Raspberry pi device and wi-fi connectivity and connected cameras and devices which will be going to control per the results. (Bulbs). Because the user will be notified who appears in front of the camera needs to store the family related people's images with various angles and under different range of lighting conditions. Standard of the images stored in the device will provide accurate results and the algorithm has used to identify images will identify the persons who appear with a darker background and some facial changes.

Keywords: Face detection, Home security, Raspberry pi, Internet of things, Smart home, WiFi

# Table of Contents

1.	Introduction.....	1
1.1	Prolegomena.....	1
1.2	Background and Motivation.....	3
1.3	Problem Definition.....	3
1.4	Hypothesis.....	3
1.5	Aim.....	3
1.6	Objectives.....	3
1.7	Summary.....	4
2.	Current Development and Challenges.....	5
2.1	Introduction.....	5
2.2	Current Developments.....	5
3.	1. Technology foundation of the solution.....	10
3.1	Introduction.....	10
3.2	Technology used for the solution.....	10
3.2.1	Raspberry Pi 3 Model B.....	10
3.2.2	Raspberry Camera.....	11
3.2.3	OpenCV.....	11
3.2.4	Python.....	12
3.2.4	Dlib.....	12
3.3	Hosting and Deployment Technologies.....	12
3.3.1	Microsoft data science server.....	12
4.	A new approach to Home Automation.....	14
4.1	Introduction.....	14
4.2	Requirement Gathering.....	14
4.3	User of the system.....	14
4.4	Input to the system.....	15
4.5	Outputs of the system.....	15
4.6	Summary.....	16
5.	Analysis and Design.....	17
5.1	Introduction.....	17
5.2	Research Planning.....	17
5.2.1	Development Methodology.....	18
5.3	Analysis of the Current Development Workflow.....	19
5.4	Requirement Analysis.....	19
5.4.1	Functional Requirement of the Proposed Tool.....	19
5.4.2	Non-functional Requirement of the Proposed Tool.....	19
5.5	Top level Design Architecture.....	20

5.6	Module Architecture.....	20
5.6.1	Image Training Module .....	20
5.6.2	Face recognition module .....	21
5.6.3	Notification module.....	21
5.6.4	Action controller module.....	21
5.7	Testing .....	21
5.8	Summary.....	22
6.	Implementation .....	23
6.1	Introduction .....	23
6.2	Overall solution .....	23
6.3	Implementation of the Solution .....	24
6.3.1	Programming .....	24
6.4	Encoding images .....	25
6.5	Face Recognition .....	27
6.6	Sending Notifications .....	30
6.7	Action controlling.....	31
6.8	Summary.....	31
7.	Evaluation of the solution .....	32
7.1	Introduction .....	32
7.2	Testing and Evaluation .....	32
7.3	Drawbacks and limitations .....	34
7.4	Summary.....	35
8.	Conclusion and Future Work .....	36
8.1	Introduction .....	36
8.2	Conclusion.....	36
8.3	Future Works .....	36
8.4	Summary.....	37
9.	Reference .....	38

## Table of Tables

Table 5-1: Execution plan.....	17
Table 7-1: Efficiency Testing .....	33
Table 7-2: Usability Testing .....	33
Table 7-3: Scaling, Lightning Based Test Results.....	34



## Table of Figures

Figure 5-1: Development Methodology.....	18
Figure 5-2: Top level design .....	20
Figure 6-1: Encoding Algorithm.....	27
Figure 6-2: Face Recognition Code Snippet – 1 .....	28
Figure 6-3: Face Recognition Code Snippet - 2.....	30
Figure 6-4: Face Recognition Code Snippet - 3.....	30
Figure 9-1: Rasp Berry Pi Camera.....	39
Figure 9-2: Rasp Berry Pi Device .....	39
Figure 9-3: Suggested device Structure .....	39
Figure 9-4: Face Training Code Snippet 1 .....	40
Figure 9-5: Face Training Code Snippet 2.....	40
Figure 9-6: Email - Owner Detected.....	41
Figure 9-7: Email - Owner Unknown .....	41
Figure 9-8: Face Identification UI .....	41
Figure 9-9: SMS-User Detected.....	42

## Abbreviations

IoT	Internet of Things
PLC	Power Line Communication
IEEE	Institute of Electrical and Electronics Engineers
NFV	Network Function Virtualization
PC	Personal Computer
IP	Internet Protocol
V	Voltage
USB	Universal Serial Bus
SD	Standard Definition
OS	Operating System
GPIO	General Purpose Input Output
LED	Light Emitting Diode
CSI	Camera Serial Interface
P	Pixels
HD	Hard Disk
Fps	Files per Seconds
OpenCV	Open Source Computer Vision Library
VM	Virtual Machine
CRAN	Calorie Restriction with Adequate Nutrition
SMS	Short Message Service
RGB	Red, Green, Blue
BGR	Blue, Green, Red