

**MASENO UNIVERSITY**

**SCHOOL OF COMPUTING AND INFORMATICS**

**DEPARTMENT OF COMPUTER SCIENCE AND TECHNOLOGY**

**BACHELOR OF SCIENCE IN COMPUTER TECHNOLOGY**

**CCT 403**

**GROUP PROJECT**

**ALEX GICHU MWAMBA CI/00029/017**

**JAMES MUHINDI WAWERU CI/00079/017**

**KELVIN KINUTHIA CI/00028/017**

**SUPERVISOR: MR. JOHN ALWALA**

**PROJECT PROPOSAL**

**SMART HOME AUTOMATION WITH MACHINE LEARNING**

**DATE OF SUBMISSION: SEPTEMBER 6, 2021**

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SMART HOME AUTOMATION

USING ESP8266, WEB APPLICATION WITH MACHINE LEARNING

A smart home automation project submitted to the Department of Computer Science in the School of computing and information technology. This project is in partial fulfillment of the requirements for the award of the degree of BSc (Computer Technology) Maseno university

### Declaration

we do hereby declare that the work presented in this project proposal is our (Alex, James, Kelvin) own original and independent work and it has not been presented before to the Faculty of Science for the award of Bachelor’s Degree in Computer Technology of Maseno University or any other related department. Thou not shall the report be duplicated without our consent.

Name: Alex Gichu Mwamba

Signature: …………………………………………

Date: …………………………………………….

Name: James Waweru

Signature: …………………………………………

Date: …………………………………………….

Name: Kelvin Kinuthia

Signature: …………………………………………

Date: …………………………………………….

Supervisor: Mr. John Alwala

Signature: ……………………………………………

Date: ………………………………………………….

### Abstract

IOT is nowadays the most preferred technology. A system of interrelated computing devices, mechanical and digital machines, objects, animals or people that are provided with unique identifiers (UIDs) and the ability to transfer data over a network without requiring human-to-human or human-to- computer interaction. One of the major sides of IOT is a smart home. Smart home is very helpful for people to make life easy. Home Automation is the automatic or semi- automatic control and monitoring of household appliances and residential house features like doors, Gate, light, fans and even the windows. The IOT definition has been evolved due to convergence of multiple technologies like, The Real Time Analysis, Machine Learning, Commodities Sensors and Embedded systems. IOT technology is used more for making the home a smart home.

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# CHAPTER 1: INTRODUCTION

## 1.1 Problem Statement

Home automation is a relatively new phenomenon that’s gaining popularity among homeowners and business people. Home automations solve a wide range of problems that users run into every day. Many homeowners complain of theft in their homes. Statistics show that crime reports estimate that close to 88% of all burglaries are residential in nature, and only 13% of the reported cases get cleared due to lack of physical evidence or witness. With more online stores like Amazon dropping an increasing number of deliveries at thousands of doorsteps, its becoming more tempting to simply walk up, grab the package and freely walk.. But home automation such as video security can simply solve this problem. In addition, smart locks are used to remotely close the door if a homeowner forgets to lock.

It is common to come home and find your house is so cold or your room is still dark and you can't find the switch. Home automation will put on the lights using an automated AI system and increase the temperature levels before getting home. Home automation also is a life saver when it comes to energy saving since it is common for people to leave the lights on or any other machine.

## 1.2 Objectives and Aims

From our project, we ought to achieve several objectives which include:

1. To come up with an intelligent system that is capable of predicting future weather (temperature and humidity) and apply collective measure from its knowledge with accuracy.
2. To develop a system that

## 1.3 Motivation

The fact that technology is growing rapidly, being in a nation full of intelligent machines being employed in industries, we thought of designing an intelligent system that will be used in homes and making life interestingly simple and enjoyable. Imagine that feeling when you have to control everything in your house, when at home and away from home? It's our aim to develop such a system. Having the existence of home automated systems, we ought to make ours special by making it more intelligent by emulating the user and learning from the action for it to command actuators independently. And also, it’s our aim to come with a simplified web app that will be free and easily accessible when either online or offline (connected or not connected to the internet)

### Justification of the Project

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# CHAPTER  2: Design implementation

Data collection and recording

Machine learning model

Web app design

Mobile application

Hardware implementation

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# CHAPTER 3: SYSTEM ANALYSIS AND DESIGN

## Requirement analysis

## Methodology

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# CHAPTER 4:  CONCLUSIONS AND RECOMMEDATION

## 4.2 CONCLUSION

Home automation based on IoT is one of the promising and essential issues in recent times. It provides a comfortable living. In this paper, we implemented an IoT-based low cost and flexible home automation system framework through a mobile web app. We intend to use ESP8266 as a microcontroller board with the Wi-Fi module. However, in future work, we will develop a smart building and as well as a smart city. The big challenge is to manage all in real-time data in a well-organized pattern. We hope our proposal will be considered and approved so that we can continue with the building of the real system.

## 4.3 References

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**APPENDIX**