Final Year Project Report

Smart Home

Project Advisor:

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Session

2013-2017

University of Management and Technology

C-II Johar Town Lahore Pakistan

Dedication

First of all we dedicate this project toour Allah Almighty our creator, our strong pillar. He has been the source of my strength throughout this program and on His wings only have I soared.We dedicate this project to our parents whosupport us to study in our life and didn't leaveus at the time of difficulty.Our parents encourage and motivate us to study and work hard. We dedicate this project to our teacher who support us and guide us at the time of difficulty.We also dedicate this project to our advisor,who guided us throughout the project briefly.We thank dean, directors and UMT faculty, appreciate the Dean Computer Science and thank Director Projects All the respected faculty members of UMT are also thank for their support and believe in us.

Final Approval

Panel of Examiners

- **Head of Department** _____
  Department of Computer Science
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- **Program Director (Final Year Projects)** _____
  Department of Computer Science
  UMT Lahore

- **Supervisor** _____
  Department of Computer Science
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- **Co-Supervisor** _____

Acknowledgment

First of all we would like to thanks to Allah who helped us in every moment of this project and our life. We want to thanks to our university who gave us opportunity to do this project. We are grateful to our teachers who helped us to complete this project. We are specially, thankful to our advisor who put extra effort to complete this project with us.A sincere thanks goes to all of those people appreciate us to do this project.Then we would like to thank our parents and friends who have helped us with them valuable suggestion and guidance has been helpful in various phases. Lastbut not the least we would like to thank our classmates and all those who helped us directly or indirectly.

Project Title	**Smart Home**
Objective	**Automate Home appliances**
Undertaken by	**University of Management and Technology**
Supervised by	**Dr. Shahid Mahmood Awan**
Starting Date	**November 1, 2016**
Completion Date	**August 10, 2017**
Tools Used	**Arduino IDE, Android Studio, Web Server**
Operating System	**Windows Operating System**
Documentation	**Version 3.0**

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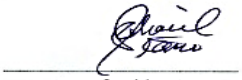

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Abstract

The project “SMART HOME” is basically a Home Automation System based on the Bluetooth and Wi-Fi. Core purpose of this project is to oblige the disabled persons who cannot easily reach to the circuit board. Architecture of this project has three major divisions. First and most important part is the android application which is basically a UI for our whole system and it send commands to the server. Second one is web server and DB which serve as central controlling unit of this project and communicates with both ends (Android+Arduino). The third one is hardware part (Arduino) which is attached to your home to control home appliances. The home appliances can be controlled through Bluetooth or Wi-Fi. This project also focuses on power saving factor and security. In addition some AI concepts are also used to manage and control home appliances automatically and efficiently.

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1. REVISION CHART

Version	Primary Author(s)	Description of Version	Date Completed
Draft	Muhammad Azeem Abdur Rahman Hira Baber	Initial draft created for proposal for Final year project	15/2/2017
Preliminary	Muhammad Azeem Abdur Rahman Hira Baber	Second draft incorporating initial review comments, distributed for final review	31/7/2017
Final	Muhammad Azeem Abdur Rahman Hira Baber	Second draft incorporating final review comments, distributed for final review	23/8/2017

2. CONTENTS

Definitions and Acronyms

Acronym	Definition
PIR	passive infrared **sensor**
LED	Light Emitting Diode
GND	Ground
VCC	**voltage** at the common collector
TX	Transmit Xing
RX	Receiving Xing
AO	Analog output
DO	Digital Output
5V	5 volt
LAN	Local Area Network
HTTP	Hyper Text Transport Protocol
IP	Internet Protocol
MAC	Media Access Control
RT	Real Time
DB	Database
AREF	Analog Reference
IOREF	Input-output reference
IOT	Internet of things

Table 1 : Definitions and Acronyms

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1. INTRODUCTION

Use of more than one technical instruments to control home features and functions automatically and sometimes remotely is known as home automation (Smart home).

1.1 Motivations

Smart home is an intelligent and efficient way of handling homes. Smart home is basically a home in which most of the appliances will work automatically and other are controlled through any smart device like mobile phone etc. It provides healthy and comfortable standard of living. Flexibility and high scalability is the basic property of smart home. Features of smart home are increasing day by day and home automation system is moving rapidly towards a new technical age. Home automation was not achievable in past few years but now a day it considered the most discussed and innovative technology. Home automation is now days run over mobile phone laptops, PDA's, Tablets etc. Some companies like Google, Microsoft are investing billions of dollars on home automation to make more research. There are two basic types of approaches for home automation. One is a single task like home security system and other one is to integrate (merge different single tasks) available tasks into single combined system. Single task solution provides us cultural functionality for users which has small degree of scope and very difficult to integrate in with some solutions. Home automation systems provides multiple functionality through an integrated interface. To maintain and install a home automation system, for unknown person which is expensive and difficult. For an untrained and unexperienced person it is difficult to install and bring many challenges. Programing is used to combined and integrate a home automation which is difficult for inexperience person. So the research is made to ease the task of programing. Through creating a flexible home automation system and maintenance of smart home the cost can be reduced. By reducing the cost and presenting an extended home automation system with time can be made affordable for many households.