Handling home appliances over Internet ( IOT )

## Syed Mohammad Ammad Hamza Maqbool

2015-CE-101 2015- CE -102

## Ammadkhan90030@gmail.com Hamzii1996@hotmail.com

## Ahsan Khalidi Nimra Tanveer

## 2015-CE-097 2015- CE -104

## Ahsan03463186694@gmail.com Shizra2010@hotmail.com

May 3, 2018

# Motivation

The concept of Home Automation it helps in reducing human eort and errors and is very useful for people with disabilities and thus increasing the eciency independent living enhancing comfort, ecient use of electricity, and safety and security. With the help of Home Automation system, we can control dierent appliances like lights, fans, TV, AC, sockets etc.

# Overview

The main idea of Handling Home Appliances Over Internet or Bluetooth with your voice especially in Urdu language.

## Signicance Of Project

Imagine a world in which every device in the home is connected. A world where the appliances automatically turn on when the car approaches the driveway. That is the type of world the Internet of Things can create. For the IoT to be fully realized all devices need to be able to connect to each other, regardless of what company manufactured the product or which companies have business relationships with each other.

## Description Of Project

The purpose of this project is set to disrupt the way we live and work, but for now let’s focus on the "live" portion of that statement. Smart homes lled with connected products are loaded with possibilities to make our lives easier, more convenient, and more comfortable. Imagine that you’re driving home on a hot summer day. But rather than turn the AC on when you get home and wait for the AC to get started, you simply use your smartphone.

# Methodology

A low cost and ecient smart home system will be presented in our project. This system has two main modules: the hardware interface module and the software communication module. At the heart of this system is the Arduino microcontroller which is also capable of functioning as a micro web server and the interface for all the hardware modules. All communication and controls in this system pass through the microcontroller.

## Design Phase

We have designed our project on Visual Studio 2013 Version 4.5 and mobile application we used Android. For ARDUINO programming we used sketch.

## Implementation Phase

Hardware Module: Arduino can sense the surroundings by receiving input signal from a variety of sensors and can aect its environment via actuators.

Software Module: The android application will be designed by using Java programming language and XML. The application will contain a Wi-Fi and Bluetooth module which interfaces with the micro-controller and allows the android smart phone to communicate with the microcontroller eectively and eciently.

## Testing Phase

We are planning to divide the testing phase into two stages. In the rst unit testing stage, we will test each module on its own isolated from the other components of the system to verify outputting the expected outcomes. In the next integration testing, we will test the system as a whole and make sure all the parts run in-sync with one another.

# Features

## Smart Home

Electronic appliances will be handled through Wi-Fi and Bluetooth.

## Interfaces

Smart Home app oer two interfaces options one is via voice commands and other is to use the mobile as a remote control.

## AC Power Support

AC power appliances support through relay.

## Voice Recognition

Smart Home app voice control features using speech recognition technology. This technology is a part of NLP. In this app we used Google speech recognition API for voice control features.

## Language Support

This Smart Home app voice control features oers two languages support English and Urdu Languages.

## Oine Support

This app also support Oine voice control features just connect Arduino with Bluetooth and control your appliances.

# Project Planning

We can only provide approximations. As research and implementations phase will take more time as compared to the other phases, we will divide the time keeping the fact in our minds. We will try to give approx. 2-3 months for research work, approx. 2 months for design, approx.

1 month for implementation, approx. 2 months for testing and evolution.

# Required Hardware and Software

SOFTWARE:

1. Android Studio
2. Languages:JAVA + XML + Csharp
3. Sketch for ARDUINO

HARDWARE:

1. Arduino microcontroller
2. ICs
3. Sensors
4. Wires
5. Switch board 6) Relay

# References

# References

1. Researchgate: Design of a Home Automation System Using Arduino https://www.researchgate.net/publication/279179486.
2. Researchgate: Internet of Things for Home Automation https://www.researchgate.net/publication/314508660.

Appendix

# Expected Internal Advisor

1. Ms. Mahvash Arsalan Lodhi
2. Mr. Zain Ali Shan
3. Ms.Sana Soomro