Home On IOS Using Raspberry Pi 3 Your Home At Your Command

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Abstract —Home automation is an important milestone and is ever exciting field that has exploded over the past few years. The one primary reason of home automation is that it gives the user an ease and comfort way for using the home devices such as lights, fans, Ac etc. Our project's implementation of wireless home automation system consist of two methods WLAN technology and iOS handheld device to control the selected home device with greater security provided by apple inc. and integral protected system. This system is a flexible and low in cost when it comes to buy the home automation system with increasing variety of devices to be controlled.

Index Terms — Home on iOS, raspberry pi 3, internet of things, home automation system.

1.INTRODUCTION

Home automation can also be called as **domotics , t**he word "*domotics*" is a contraction of the Latin word for a home (*domus*) and the word *robotics*. Which is the building automation for a home, called as a **smart home** or a **smart house**. It involves controlling lights, heating such as smart thermostats, ventilation, AC's (HVAC) and security such as smart locks, as well as home appliances such as washer/dryers, ovens or refrigerators/freezers. WI-FI is often used for accessing the devices remotely. Home automation comes under the INTERNET OF THINGS when it controls the home devices via internet.By 2012, in the United States, according to ABI Research, 1.5 million home automation systems were installed.
According to Li et al. (2016) there are three generations of home automation

1. First generation: wireless technology with proxy server, e.g. Zigbee automation.
2. Second generation: artificial intelligence controls electrical devices, e.g. Amazon Echo.
3. Third generation: robot buddy who interacts with humans, e.g. Robot Rovio, Roomba.

2.Related survey

In this section, we review some related technologies and previous works on the topic of location based application. Geo location is the first step to providing location based services. Existing Systems-We have studied and visited the different websites and the literatures. As per the literature review, the various organizations and individuals have tried to overcome the problems in the traditional home automation system. Some of them are listed below.

1. **R.Piyare,M.Tazil, " Bluetooth Based Home Automation System Using Cell Phone", 2011 ,IEEE 15 th International Symposium on Consumer Electronics, Singapore, pp. 192 - 195..**
   In this system bluetooth played the main role in controlling the devices connected to the arduino or raspberry pi module. The mobile app was made to get connect with the module through bluetooth and after the connection of the app with the module the electrical applicance s like light, fan etc were controlled. The problem faced in system like these was that it was limited to some specific range of bluetooth.
2. **Smart Home System Using Android Application-R.A.Ramlee, M.A.Othman, M.H. Leong1, M.M.Ismail, S.S.S.Ranjit.**
   This system depends on the android and arduino in which both are FOSS (Free open source software. The devices of our houses are associated to the ADK and the Connection is established between the Android device and ADK.

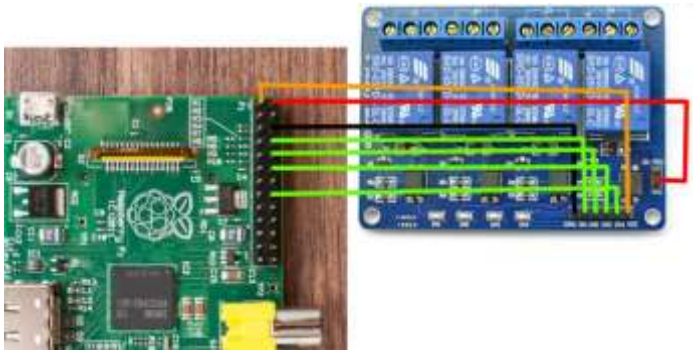
REQUIREMENTS

Host Module/Controller

The operating device or the controller we are using is an iPhone. It operates on iOS. iOS is Apple's mobile operating system that runs on iPhone, iPad, and iPod touch. Historically, Apple releases a new iOS version once in a year, the current version is iOS 11.

Relay Interface Circuit

The relay interface circuit is used to connect the PC, tablet or any device with the home appliance. The circuit comprises of a relay (5v, 5A), a freewheeling diode, a transistor to drive the relay energizing input and connectors to interface parallel port. For testing purpose two LED's (serving as light bulbs) are used.



Xcode

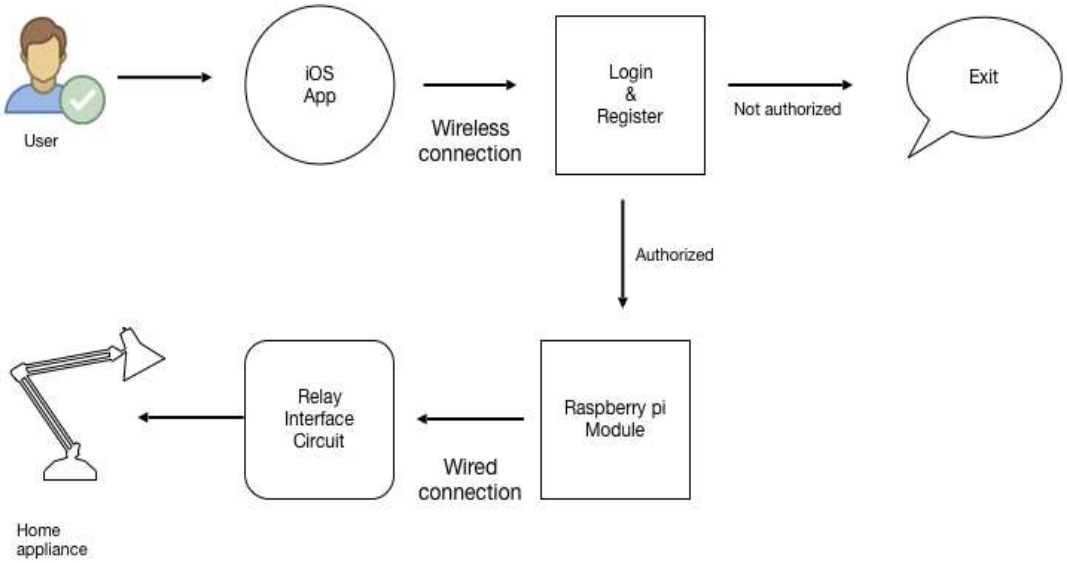
Xcode is the complete developer toolset used to create apps for Apple watch, Apple TV, iPhone, iPad, and Mac. The Xcode development environment bundles the Instruments analysis tool, Simulator, and the OS frameworks in the form of tvOS SDKs, watchOS SDKs, iOS SDKs, and macOS SDKs. Xcode 8 supports Swift 3 as well as Swift 2.3. A Swift migrator is provided to help upgrade your Swift code to the latest Swift 3 language specifications and SDK requirements.

Raspberry pi 3

Raspberry pi is the single board computer, **Raspberry Pi** is a credit-card-sized computer that costs between $5 and $35. It's available anywhere in the world, and can function as a proper desktop computer or be **used** to build smart devices. it is a capable little device that enables people of all ages to explore computing, and to learn how to program in languages like Scratch and Python.

Steps involved in the methodology

Step1- User has to register himself with the app, if he is registered then he has to proceed with logging in to the app.
Step2- If the user is not registered, he is not allowed to enter to the app so he can exit the app without logging in to the app.
Step3-If the user successfully log in to the app and is authorised then he can control the devices connected to the raspberry pi module.



APPLICATION

By the rapid developments of new technologies, monitoring and controlling services have been started to be served along with internet as an instrument which provides interaction with machinery and devices. The system can be used in several places like homes, banks, hospitals, labs and other sophisticated automated system, which dramatically reduces the hazards of unauthorized entry.

CONCLUSION

In the upcoming time, the traditional grids of today will evolve into a robust, environment friendly, energy efficient and effective system known as the Smart Grid. Even our houses will undergo its own transformation towards the smart homes that will be in constant interaction with the grid in an effort for better energy management and full home automation for ensuring comfort and security. Present paper sought to design a smart home that will be controlled by the Raspberry Pi via the Internet of things (IoT). This system is also equipped with automated lights and virtual switches for controlling lights and appliances in the home remotely using external or internal networking with the Raspberry Pi via an HTML page.

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