

**Android and Gesture Based Smart Office Control**

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Abstract — *Controlling the office and electronics gadgets through an Infrared remote control is now in general. But the same controlling tasks can be done more easily. Primary motive of proposing the new system of hand gesture remote control is to remove the need to look in to the hand held remote and to search for a specific key for specific function. This project proposed a novel system to control office through hand gesture as a remote control device. The system will be referred to as Hand mote in this project. We are using aurdino.*

Keywords-Relay, gesture reorganization, aurdino, WIFI, camera interface.

I. INTRODUCTION

Concepts on smart office application and development includes various implementation techniques and is never limited. Smart office systems are created based on analysis on client needs and budget to cater for the system. With technologies available today, efficient integration of this system could be achieved.

A. Office automation& wireless technology:

Office automation, also referred to as smart office concept, is not new to consumers. It encompasses the ability to control electrical and electronic devices at office remotely thus providing ease of access to office users. This concept may be applied in various manners to fit the requirement of a smart office. Now, advancement in wireless technology introduced new ideas such as Bluetooth and Internet linking; Wi-Fi, which has been slowly replacing the conventional wired technology which requires wire bonded interconnection between electrical devices.

The main advantage of wireless interlinking includes diminishing the need of wires for connection. Nowadays, Bluetooth technology which uses frequencies from 2400-2480 MHz could provide wireless connectivity of up to 100metres apart. One master device is however limited to connect 7 devices in a 'piconet'. Wi-Fi on the other hand, could provide access to the World Wide Web or Internet easily as long as the device setup is correct. The realization of this technology will be applied in this project to build a working prototype on a mobile phone or PC to successfully control and monitor office appliances.

II. LITERATURE REVIEW**1) Exploiting Bluetooth on Android Mobile Devices for Home Security Application**

AUTHORS: Josh Potts and Somsak Sukittanon

Cell phones have been incorporated into our ordinary life. Subsequently, home mechanization and security are turning out to be progressively unmistakable components on cell phones. In this paper, we have built up a security framework that interfaces with an Android cell phone. The cell phone and security framework convey by means of Bluetooth in light of the fact that a short-extend just interchanges framework was fancied. The versatile application can be stacked onto any perfect gadget, and once stacked, interface with the security framework. Summons to bolt, open, or check the status of the way to which the security framework is introduced can be sent rapidly from the cell phone through a straightforward, simple to utilize GUI. The security framework then follows up on these orders, making the suitable move and sending an affirmation back to the cell phone. The security framework can likewise tell the client if the entryway is open. The entryway additionally consolidates a customary secure and key interface case the client loses the cell phone.

2) Smart Home System for Disabled People Via Wireless Bluetooth

AUTHORS: .A.Ramlee, D.H.Z.Tang, M.M.Ismail

This paper portrays the Smart Home System for Disabled People by means of Bluetooth Wireless. Keen home framework for cripple individuals is the framework called assistive domestics concentrates on making it feasible for the handicapped to propel them do the every day movement, sheltered and agreeable. However in our examination work, we endeavor to plan the shrewd home framework including the remote controller by means of Bluetooth innovation. This product application adjust in cell telephone, PDA, versatile PC (Samsung Galaxy Tab) utilizing android's working framework (OS). This product application will control the electrical machines switches remotely (Bluetooth). Results from this study found that the framework was effectively delivered where it can control any of the remote switches at a separation of around 25 meter sweep from the fundamental controller. The framework is seen conceivably be utilized as a part of healing centers, home look after the elderly and offices for impaired clients.

3. Bluetooth Remote Home Automation System Using Android Application

AUTHORS: R.A. Ramlee, M.H.Leong,.

This paper shows the general outline of Home Automation System (HAS) with minimal effort and remote control. This framework is intended to help and give support keeping in mind the end goal to satisfy the needs of elderly and incapacitated in home. Likewise, the shrewd home idea in the framework enhances the standard living at home. The primary control framework executes remote Bluetooth innovation to give remote access from PC/tablet or advanced mobile phone. The outline remains the current electrical switches and gives more security control on the switches with low voltage actuating system. The switches status is synchronized in all the control framework whereby each client interface shows the constant existing switches status. The framework proposed to control electrical machines and gadgets in house with moderately minimal effort plan, easy to use interface and simplicity of establishment.

4 Semantic-Based Resource Discovery and Orchestration in Home and Building Automation: A Multi-Agent Approach

AUTHORS: Michele Ruta, Floriano Scioscia

In this paper, we have proposed a protected information collection convention for remote sensor systems (WSNs) that is vigorous to misleading hubs. The objective of this convention is to ensure the fundamental security needs (like source verification, information privacy and information trustworthiness) and in addition to accomplish low correspondence overhead and be fitted with different conglomeration capacities (like total, normal, max, min and so on.). To accomplish these security needs, it utilizes symmetric encryption and message validation code (MAC). Encryption guarantees information privacy while message verification code guarantees confirmation and information honesty. An inconsistency discovery calculation is utilized to identify the irregularity or anomalies and in this way keep the tricky undermined information from being added to the last amassed results. Reenactment results demonstrate that our convention upgrades the security of the accumulated information extensively in WSNs.

III. SURVEY OF PROPOSED SYSTEM

We have proposed a Controlling the office and electronics gadgets through an Infrared remote control is now in general. But the same controlling tasks can be done more easily. Primary motive of proposing the new system of hand gesture remote control is to remove the need to look in to the hand held remote and to search for a specific key for specific function. This project proposed a novel system to control office through hand gesture as a remote control device. The system will referred to as Hand mote in this project. We are using aurdino.

At first it will connect to office WIFI then the gesture is recognize ,after that the Authentication of user is done, Then the mobile is connected to office through aurdino. And access of particular device of floor is given to user.

IV. MODULES

- Gesture reorganization
- Camera interface
- Control device

4.1 Gesture recognition .

- Edge detection:

Edge detection is an image processing technique for finding the boundaries of objects within images. It works by detecting discontinuities in brightness. Edge detection is used for image segmentation and data extraction in areas such as image processing, computer vision, and machine vision.

- **On bases of detection perform operation:**

On the bases of detection action will be taken like if two finger are detected then select department E&TC else select computer department.

4.2 Camera interface :

For camera interface we utilize image procurement tool stash Image Acquisition Toolbox™ empowers you to obtain pictures and video from cameras and edge grabbers straightforwardly into MATLAB® and Simulink®. You can identify equipment consequently and design equipment properties. Propelled work processes let you trigger securing while handling insider savvy, perform foundation procurement, and synchronize inspecting over a few multimodal gadgets. With backing for different equipment sellers and industry guidelines, you can utilize imaging gadgets running from modest Web cameras to top of the line logical and mechanical gadgets that meet low-light, rapid, and other testing prerequisite.

4.3 Control device :

In this project for controlling device we use relay. A relay is an electrically operated switch. Many relays use an electromagnet to mechanically operate a switch, but other operating principles are also used, such as solid-state relays. Relays are used where it is necessary to control a circuit by a low-power signal (with complete electrical isolation between control and controlled circuits), or where several circuits must be controlled by one signal. The first relays were used in long distance telegraph circuits as amplifiers: they repeated the signal coming in from one circuit and re-transmitted it on another circuit. Relays were used extensively in telephone exchanges and early computers to perform logical operations. A type of relay that can handle the high power required to directly control an electric motor or other loads is called a contactor. Solid-state relays control power circuits with no moving parts, instead using a semiconductor device to perform switching. Relays with calibrated operating characteristics and sometimes multiple operating coils are used to protect electrical circuits from overload or faults; in modern electric power systems these functions are performed by digital instruments still called "protective relays".

4.4 Mathematical Model

Let S is the Whole System Consists:

Relevant mathematics associated with the Project

$S = \{I, O, P\}$

I=Input images

O=Output on /off switch according to decision

P= Process

$P = \{IP, SD, R\}$

IP= image processing

SD= Selection Department

R = Relay on off

V. SYSTEM ARCHITECTURE

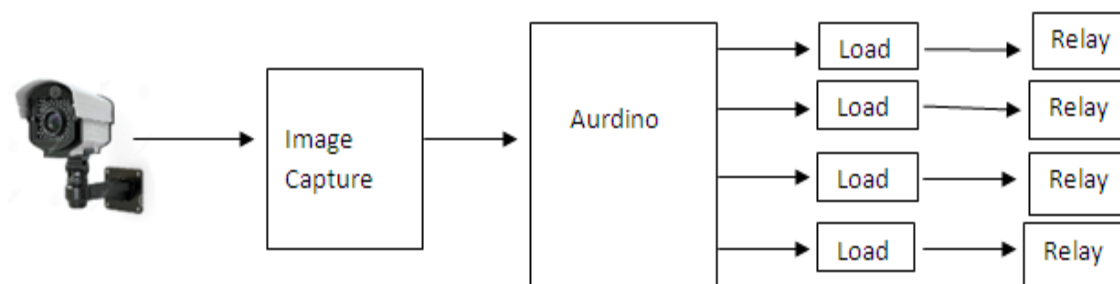


Fig.5.System Architecture

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VI CONCLUSION AND FUTURE WORK

In this paper, we have proposed a office automation using android and hand gesture, Controlling the office and electronics gadgets through an Infrared remote control is now in general. But the same controlling tasks can be done more easily. Primary motive of proposing the new system of hand gesture remote control is to remove the need to look in to the hand held remote and to search for a specific key for specific function. This project proposed a novel system to control office through hand gesture as a remote control device. The system will referred to as Hand mote in this project. We are using aurdino.our future work will be control device from remote location

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