



Android and Gesture Based Smart Office Control

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Abstract — *Controlling the office and electronic gadgets through an Infrared remote control is now in general. But the same controlling tasks can be done easily. Primary motive of proposing the new system of hand gesture remote control is to remove the need to look in to the 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.*

Keywords-Relay, gesture reorganization, Arduino, WIFI, RGB And Gesture sensor APDS-9960 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. EXISTING SYSTEM

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 so as to satisfy the needs of elderly and crippled in home. Additionally, the sarvey home idea in the framework enhances the standard living at home. The principle control framework actualizes remote Bluetooth innovation to give remote access from PC/tablet or advanced cell. The configuration remains the current electrical switches and gives more security control on the switches with low voltage actuating technique. The switches status is synchronized in all the control framework whereby each client interface shows the constant existing switches status. The framework planned to control electrical apparatuses and gadgets in house with generally minimal effort outline, easy to use interface and simplicity of establishment.

Drawbacks of Existing System:

- Limited area.
- Less security.

III. 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.

Advantageous of Proposed System:

- Remotely access.
- Efficient handling.
- Ensures data security.

IV. MODULES

- Gesture reorganization
- Camera interface
- Control device

4.1 Gesture recognition .

➤ Motion Detection:

In Motion Detection We use RGB And Gesture sensor APDS-9960 Gesture Chip, In That We provide 3 I/O for successful gesture recognition.

4.2 Control device :

In this project for controlling device we use relay. A relay is an electrically operated switch. Relays mainly use an electromagnet to mechanically operate a switch, but other operating principles are also used, like solid-state relays. Relays are always used where it is necessary to control a circuit by a low-power signal or where several circuits must be controlled by single signal. The first relays were used in long distance telegraph circuits as amplifiers: they repeated the signal coming in from circuit and re-transmitted it on another circuit. Relays were used extensively in telephone exchanges and computers to perform logical operations. A type of relay that can handle the high power required to control an electric motor is called a contactor. Solid-state relays control power circuits 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 that type of functions are performed by digital instruments still called "protective relays".

4.3 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

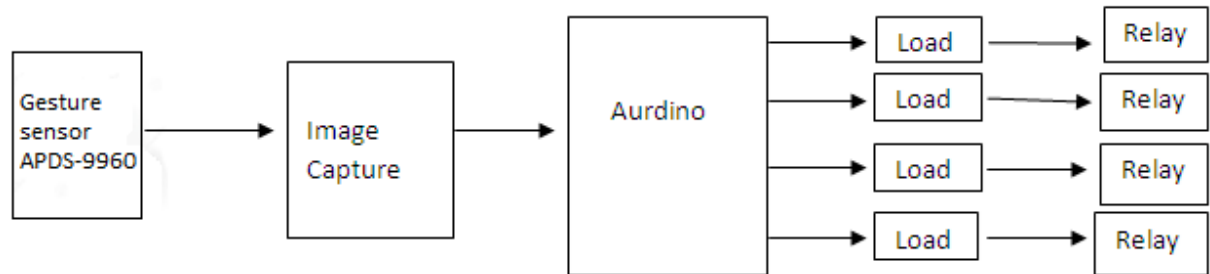


Fig.1.System Architecture

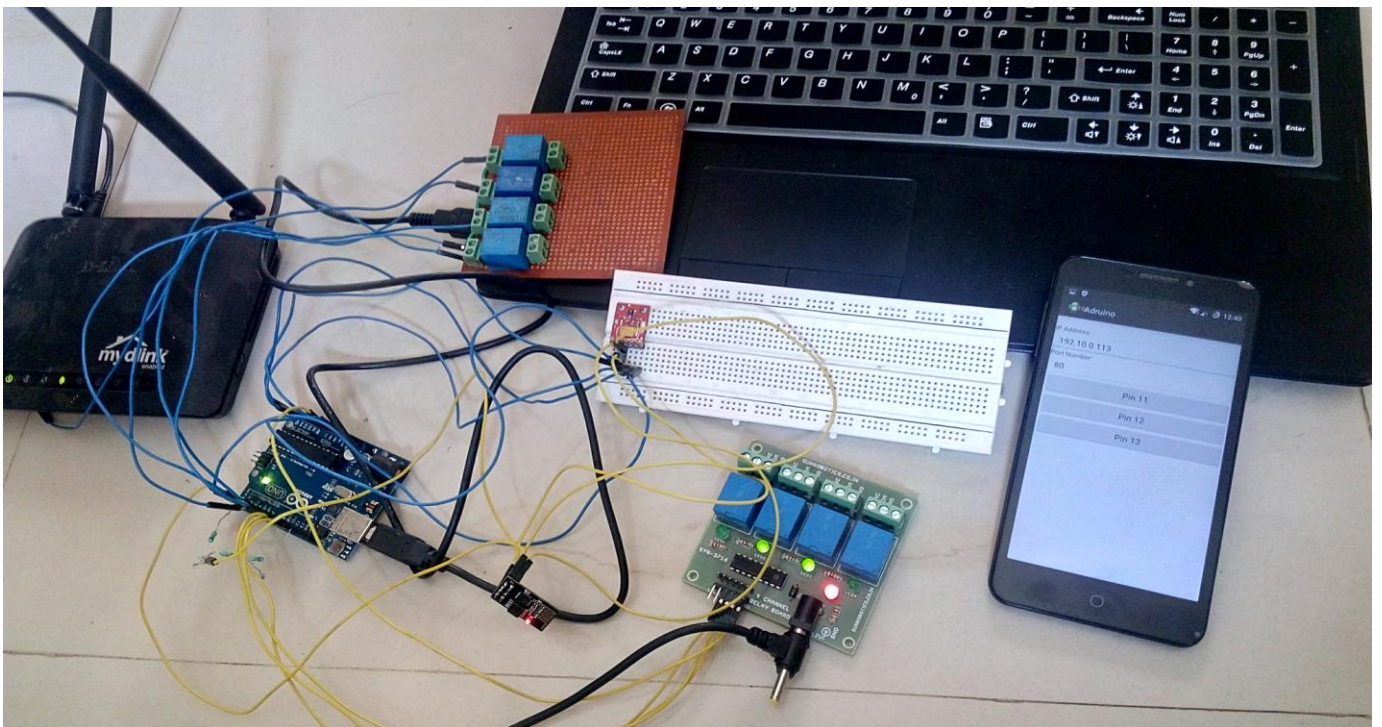
We have proposed a Controlling the office and electronics gadgets through an Infrared remote control is now in general. But the same controlling tasks can be done more easily. Primary motive of proposing the new system of hand gesture remote control is to remove the need to look in to the hand held remote 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.

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CONCLUSION AND FUTURE WORK

In this paper, An office automation using android and hand gesture, Controlling the office and electronic gadgets through an Infrared remote control is now in general. But the same controlling tasks can be done easily. Primary motive of proposing the new system of hand gesture remote control is to remove the need to look in to the button 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 Arduino Uno future work will be control device from remote location.

RESULTS





```
#include <Wire.h>
#include <SparkFun_APDS9960.h>

// Pins
#define APDS9960_INT 2 // Needs to be an interrupt pin

// Constants

// Global Variables
SparkFun_APDS9960 apds = SparkFun_APDS9960();
int isr_flag = 0;

void setup() {

  // Set interrupt pin as input
  pinMode(APDS9960_INT, INPUT);
  pinMode(13, OUTPUT);
  pinMode(12, OUTPUT);
  pinMode(11, OUTPUT);

  // Initialize Serial port
  Serial.begin(9600);
  Serial.println();
  Serial.println(F("-----"));
  Serial.println(F("SparkFun APDS-9960 - GestureTest"));
  Serial.println(F("-----"));

  // Initialize interrupt service routine
  attachInterrupt(0, interruptRoutine, FALLING);
}
```

Done uploading.

Global variables use 566 bytes (27%) of dynamic memory, leaving 1,482 bytes for local variables. Maximum is 2,048 bytes.

Arduino Uno on COM3

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