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Automation System for Household Electronic Devices Using Touch Interface

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Abstract— Today, we face a lot of problems when it comes to household circuits. For example, if the Air Conditioner is set for three hours in the night time and once it switches off, the person has to wake up and turn on the fan. This automation system implemented using ULK kit is designed to overcome these sorts of problems. First and foremost the idea is about embedding the electrical devices in the entire house to a single embedded circuit, so that each device is aware of the functioning of the other device. Secondly the traditional switch boards are replaced by touch screen. So the user need not turn on or off the switches, but instead needs to just make a touch on the screen. The initial color of the touch screen is set to the color of the wall so that new comers don't know where the switchboard exists. This provides a clean finish to the room's architecture. Apart from this, password is set for the touch screen so that only when a correct password is given, the screen navigates to the control panel to control the electrical

Keywords - Automation, Embedded circuit, House security, Touch switch board.

I. INTRODUCTION

In today's household circuits, each device is not aware of the other device functioning. This also leads to wastage of energy. Eg: If the Air Conditioner and the fan run simultaneously in a single room, it is wastage of energy.

In this project, the entire switch boards are replaced with touch panels with security settings. The basic idea is to configure the on and off states of the electrical devices according to the user's interest. The security settings in the touch panel will also act as a child lock. Our proposed system will also save energy. For example: (i)The user can set his car parking lights to automatically switch On by 6 P.M and switch Off automatically by 6 A.M. (ii) The user can configure a single button for all the lights and fans in the house. So that if the person in a hurry to go to his office he could just make a single touch to switch off all the lights and fans in house and then leave out.

II. MOTIVATION OF THREAT

The users are basically threatened by means of price discriminating factors or statistical flow on utility discriminating factors. The risk is also associated when a developer tries to make profit from the ideas or work done by the users. The users could, for example, write new ideas in a note taking app, and those ideas could then be sent as a custom event, and the developers use those ideas to make profit from them. This can happen because the ownership of content is usually unclear in the law. If the users' identity is not protected, there are possibilities of more threat existence, for example, the risk of private information about the users being available on the internet. At the extremity, there is an avenue for a country's government to gather more private information and indulge with powers to access & utilize its citizens' information. In order to explore more about this threat, a case study on Hospital Information System has been considered.

III. SUMMARY OF EXISTING SYSTEM

In the existing household electrical circuits, one device is not aware of the working state of the other device and hence controlling devices one after the other automatically becomes difficult. All actions need human participation in the existing system. These problems can be overcome by automation. Additionally the existing system has only the traditional switch boards that can be used only for switching on or off the device and nothing more. Also there are security issues with switch boards, as anyone can access the switches in a person's home.

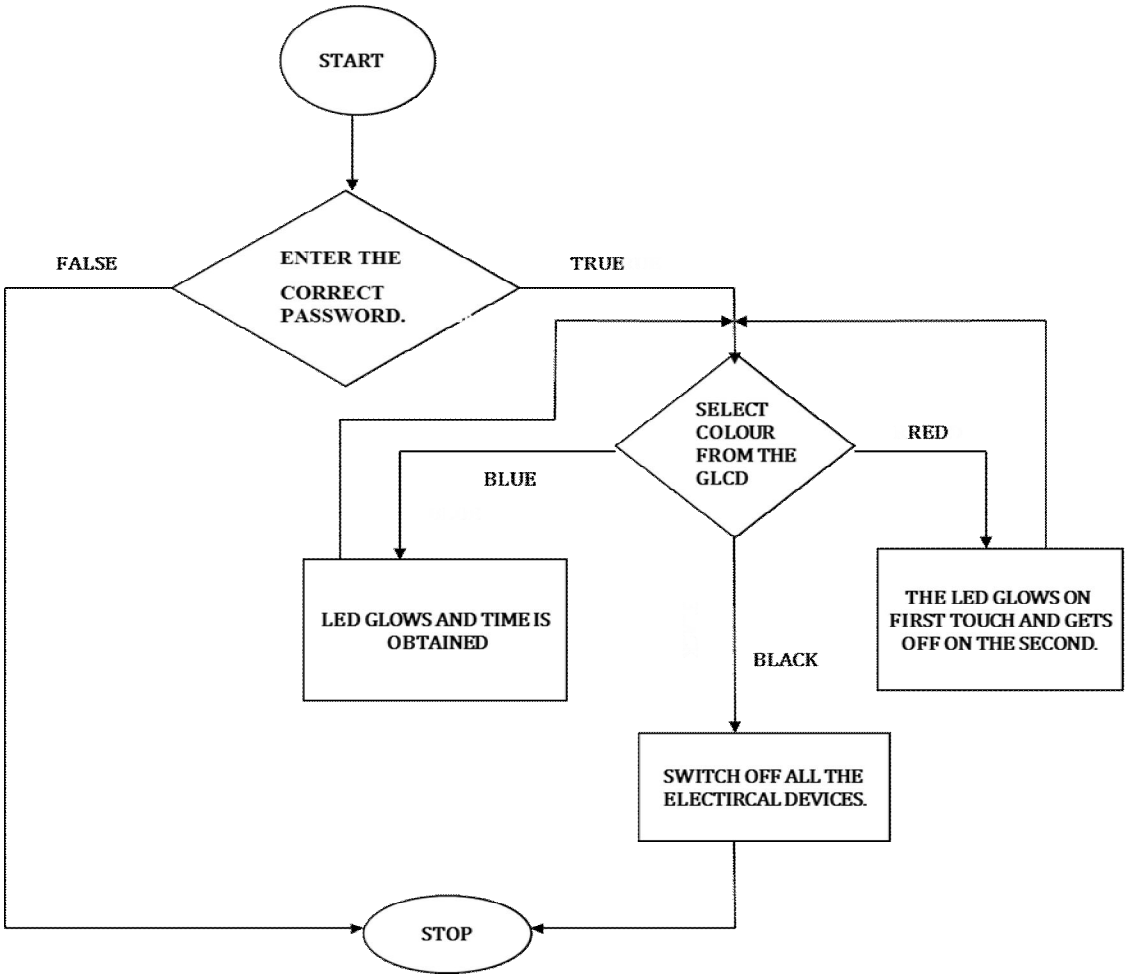
IV. PROPOSED SYSTEM

Our proposed system has embedded circuits with touch interface. This proposed automation system for household electrical devices can solve several real time problems. The implementation of this system is done using the Unified Learning Kit (ULK) [1], so for a small representation we have given different colors to perform different tasks.

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A. Flow Chart



B. Algorithm

Step 1: Start
Step 2: Enter the correct password through the touch interface.
Step 3: Touch any one color to perform its respective task.
Black: Switch off all the electrical devices.
Red: On and Off of the LED's
Blue: Set timer for the Led. As soon as the LED switches off, the Character LCD switches on.
Step 4: Stop

C. Sample Code

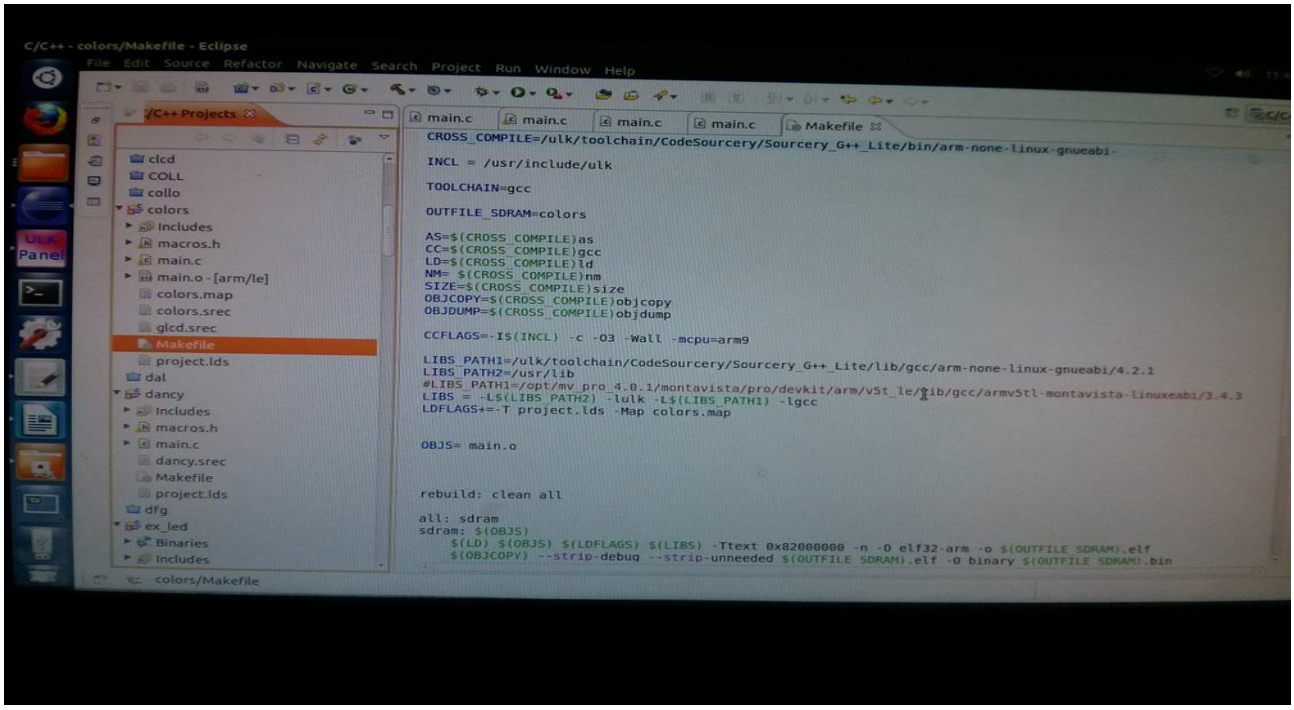
```
/*-----------------------------------------------------------------------------------------------------------
Function Name:clcdd()
Parameters:None
Return Type:None
Usage:To display that the clcd is ON
-----------------------------------------------------------------------------------------------------------*/

        voidclcdd()//function for clcd on
{
        ulk_fpga_clcd_init();
```

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```
    ulk_fpga_clcd_display_on();
    ulk_fpga_clcd_display_clear();
    ulk_fpga_clcd_cursor_home();
    ulk_proc_led_drive(1-1,0);
    ulk_fpga_clcd_display_string("ON");
    pixel.x=0;
    pixel.y=0;
}
```

V. EXPERIMENTAL RESULTS



VI. CONCLUSION

Thus using the proposed system for automation of household electrical devices, more security is provided .The touch panels provide additional features apart from the On and Off of the electrical devices. Also the energy consumption in the houses can be reduced by providing automation.

VII.FUTURE WORKS

The future work of this project is to implement this automation system in the form of mobile Application so that all the electrical devices can be controlled remotely.

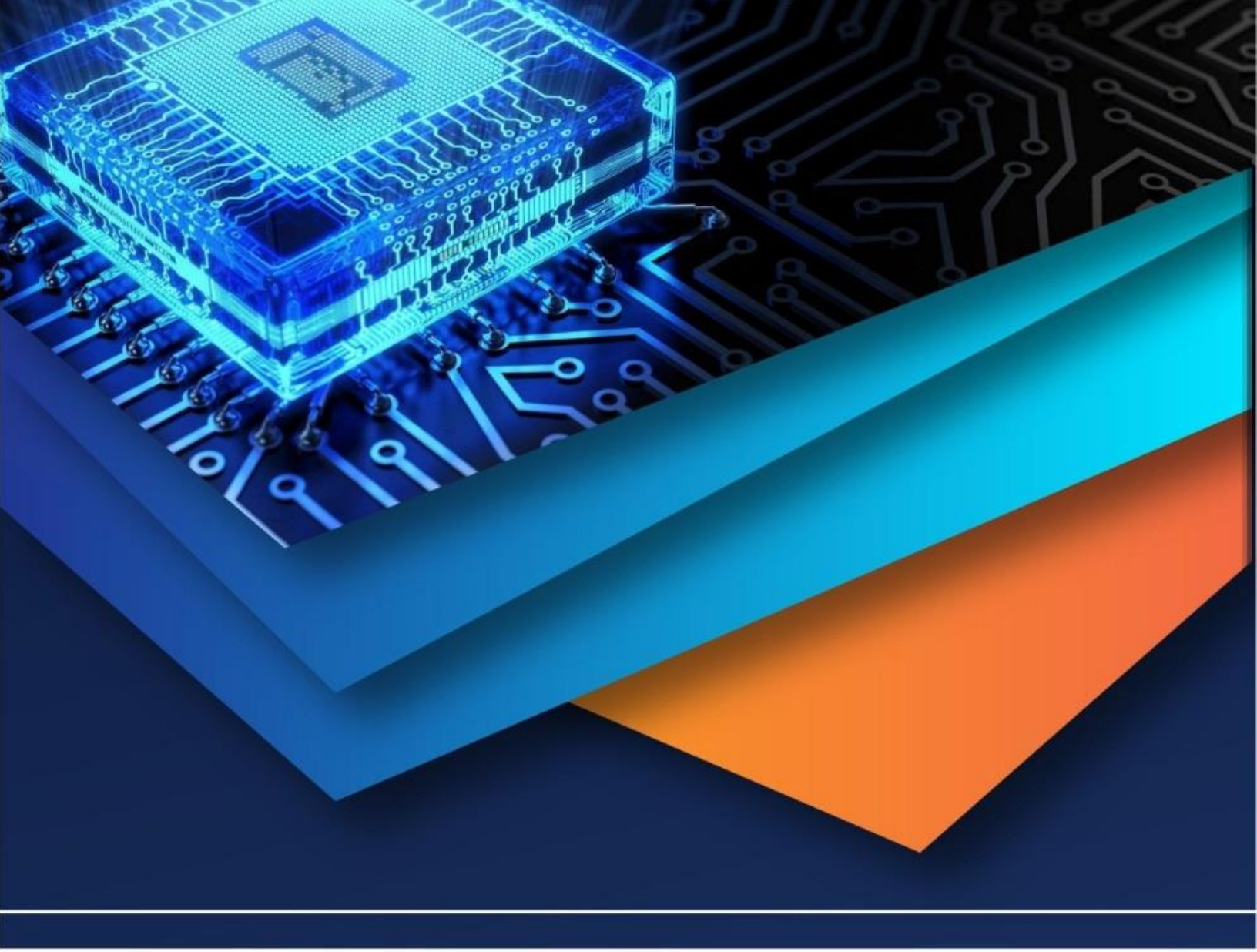
REFERENCES

[1] ULK Reference Manual,Page No: 57-59 .

ABOUT THE AUTHORS

Ashok Murugesan received his M.Tech from JNTU, Anantapur. He completed his BE from Madurai Kamaraj University, Madurai. He is the academic consultant for Fabmax Semiconductors Research Labs Private Limited, Chennai. His area of research includes Grid Computing, Cloud Computing, and Computational Intelligence. He is the member of ISTE. He presented several papers in National and International Conferences. He published 35 papers in peer reviewed International Journals. He is serving as TPC member for international workshops & conferences.

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