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Smart Automation Public Address System

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ABSTRACT

Now a days many school and college bells are operated manually. Hence there is a huge demand of accuracy is required. In market there are many digital clocks available with bells but rings only at specific time and cannot stop after that specific time. A new and inexpensive design is being presented here, in this project. The benefit of this design is that, the bell rings at the start of each period without any human intervention and hence takes over the manual task of switching on/off the college bell with respect to time. It uses Real Time Clock (DS1307) which work at the real time. The RASPBERRY PI is used to control all the functions; When this programmed time equals the real time then the speaker is switched on for a predetermined time. The bell ringing time can be edited at any time, so that it can be reused at normal class timings as well as at exam times. Also the voice play module with USB player and speaker, play the national anthem according to the users given time as programmed using Raspberry pi.

Keywords: Raspberry pi, HDMI Cable, Speaker, SD Card

I. INTRODUCTION

In market there many digital clocks available with bells but rings only at specific time. For e.g. Alarm Clock and some bells that ring after some time intervals and that cannot stop after specific time. For e.g. Musical Clock But all these limitation have been removed by our project. It rings only according to our college time table. The whole world is turning towards the automation. Automation and mass production is associated with advancement in technology. In the mass production units since the quantity items requires is very high with little or no variety, special purpose machines or transfer lines has been used. The concept of automatic control is employed in every industry to control various machining process and operation. So here we are to do the automation in audio system that we use in our college premises. We are using Arduino here to do automate the audio system. We are using the SD card module to the track of National Anthem. We are doing this project to reduce the work of the one to go every day at audio room to paly the national anthem. This system is an application facing short-range wireless communication, which applies the wireless communication to the traditional ringing system to achieve the improvement of the traditional system and the time uniformity of ringing time of each

teaching building. Therefore, the in-depth research on the wireless bell system is very necessary and the system is the explorative application of the wireless bell and has strong practicality.

II. LITERATURE SURVEY

[1] Product Survey- "The traditional campus bell control system applies wired control system and there are difficulties in installation and wiring. This paper has put forward a wireless bell control system with the core of microcontroller AT89S52 microprocessor and 315MHz wireless transmission chip. The hardware design has realized the power circuit, minimum system circuit of the microcontroller, keyboard circuit, wireless transmission circuit, LCD display circuit, real-time clock circuit, EEPROM memory circuit, and ringing drive circuit. The software realizes the microcontroller-controlled program, realtime clock program, memory EEPROM reading and writing program, and LCD display program. The test results show that the clock is running accurately, with the maximum wireless communication distance of 1.2 Km.

[2] Product Survey- "This paper describes an embedded system for the automation of scheduling systems such as



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school bells, factory shift changes, military drills etc. The system consists of two parts:a remote node used for remote control and setup of the system and the real time actuator node which controls a physical object, for example, a bell system. The hardware and software structure are illustrated in detail for both parts of the system through the implementation as an automatic school bell system.

[3] Product Survey- "This paper discusses about the design and implementation of low power automatic scheduled alarm system whose schedule and time can be programmed using a computer via Universal Serial Bus port. Educational institutions, Factories, hospitals, etc are some places where this can be primarily used. The system uses an 8 bit PIC18f4550 microcontroller, a DS12626 Sanyo 16x2 character LCD, a DS1208 Real Time Clock (RTC) and an electrical relay to drive the ringer. The LCD displays the calendar details like day, date, time with second's accuracy. Stress is given on low power consumption system design. Power savings compared to 7segment display is also discussed. Power consumption is lowered by using ultra low power techniques by disabling unused peripheral units and by introducing sleep mode. The power down mode of the system does not affect alarm system or the display system. This is one of the advantages. The design is initially verified using MPLAB IDE and Proteus lite simulator and then the real hardware is implemented. Complete power analysis with specific interfaces of the system is also performed.

III. METHODOLOGY

The progress in the research work can be observed as





Fig 1. Block diagram

WORKING

RASPBERRY PI:- The Raspberry Pi is a low cost, creditcard sized computer that plugs into a computer monitor or TV, and uses a standard keyboard and mouse. It has the ability to interact with the outside world, and has been used in real time applications. It is the heart of the system which controls all the operations.

LCD DISPLAY:- 16*2 lcd display we are using here there are three control pin RS, RW, ENABLE. And remaining are the data pins used here.

SPEAKER:- output via speaker is like bell after every period, also anthem playing.

RTC:- real time clock is used. For time to play the anthem as well as ringing of bell.



Fig. 2 Circuit Diagram

IV. TOOLS AND PLATFORM

Hardware requirement

- Raspberry pi
- Speaker
- LCD dispaly
- SD Card
- Power supply

Software requirement

- Python(Programming)
- Simulation(Proteus)

RASPBERRY PI



Fig. 3 Raspberry Pi Model

LCD DISPLAY



Fig.4 (16*2) Lcd Display.

V. CONCLUSION

This circuit is simple to prepare and easy to install. Also it provides playing of national anthem according to the programmed time. We can say that it will be much useful for colleges or schools or other educational Institutions.

A lot more advancement can be done in this design. The advantage of this design is that the timings can be edited according to an individual's requirement. Hence it can be reused infinite number of times. Automatic bell system with announcement and national anthem is also played according to the programmed time using this design. In future much advanced automatic bell system can be made.

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