Automatic collage Bell using Microcontroller

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Abstract: The main objective of this paper is to implement an automatic collage bell using microcontroller. An automatic bell system for school or collage reduce the effort necessary to control an electric bell manually that gives alarm for certain intervals of time based on school r collage timing.

This paper helps to manage the schedule and works automatically according to it. You have to set the instructions at once and then it will work accordingly. You can see the entered data on the LCD screen. You can set many periods as you want. The timer represents in LCD is in seconds. Then confirm the time and a timer will start on the LCD. When the time is over the buzzer starts running. We used three major components which are Real Time Clock (RYCDS1307), 16*2 LCD module, and Arduino.

Keywords: Atmega32Microcontroller, Bluetooth module, RTCDS1307, LCD display , Relay, Buzzer.

I. INTRODUCTION

In schools and collages, ringing bells at the time is important for keeping everything running smoothly. But sometimes, manually ringing bells can be a hassle and cause disruption. To solve this problem, we've developed a system the uses a tiny computer called a microcontroller to ring bells automatically. This paper talks about how this system works, why it's helpful, and how it can make life easier for everyone in a collage setting. The Atmega32 microcontroller is backbone of the proposed bell system. To automate the ringing of bell in collages for class schedules. Atmega32microcontrller chosen for its versatility and ease of programming.

II. METHDOLOGY

A.   *Hardware:*
I.   *Block diagram*:
In this figure the block diagram of automatic collage bell using microcontroller, the real time clock (RTCDS1307) for time. When this time equal to the bell ringing time, the relay for the bell is switched on. The bell ringing time can be edited at any time, so that it can be used at normal class timing as well as exam time[2]. Here arduino used for reading from DS1307 and display it on LCD module.
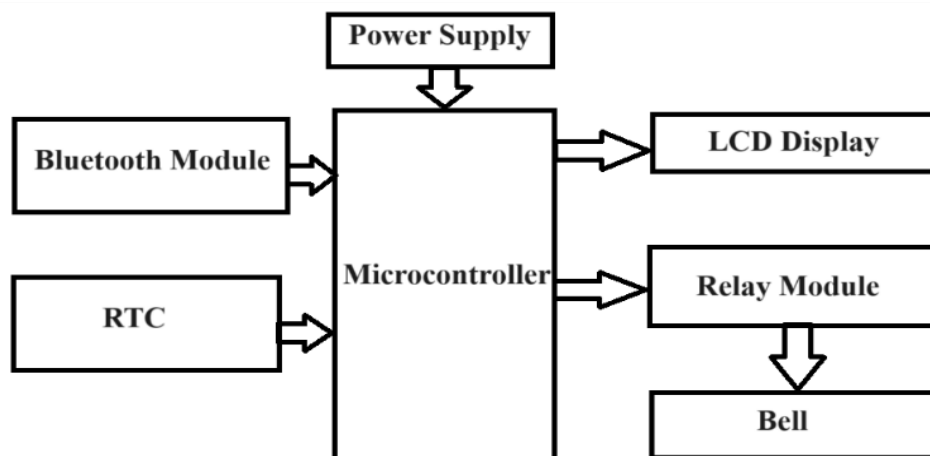

Fig.I. Block Diagram of Automatic collage bell using microcontroller

I.   Power Supply:-In this circuit, we provide 230v AC power supply convert into 12v DC using full wave bridge rectifier.

II.   Atmega32Microcontroller:-It is single chip microcontroller created by Atmel in mega AVR family. IT has 32 I/O pins of which 24 (0-23) pins can be used as digital pins and 8 (A0-A7) pins can be used in analog pins for varying input.

III.   RTC:- The RTC is a temperature compensated crystal oscillator equipped I2C real time clock that is incredibly accurate. Here we use DE1307 RTC.RTC keeps track of information about the hours, minutes, seconds, year, month, day, and date[5].

IV.   Bluetooth(HC 05)**:-**For the communication of the robot with the cell phone mobile we are using the Bluetooth device. It is used for converting serial port to Bluetooth.

V.   LCD:-A Liquid crystal display (LCD) is a flat panel display. electronic visual display that uses the light modulating properties of liquid crystals. Liquid crystals do not emit light directly.

VI.   Relay:- The relay is used as a switch to operate the bell. Signal is generated in the microcontroller and sent through the output port. The electronic circuit receives the signal and drives a corresponding relay. The real time clock displayed on LCD.

VII.   Buzzer:- A buzzer or bell is an electromechanical device designed to produce a loud and distinctive sound when activated. It is commonly used in various application such as buzzer, alarm sound, electric bell and other different sound.
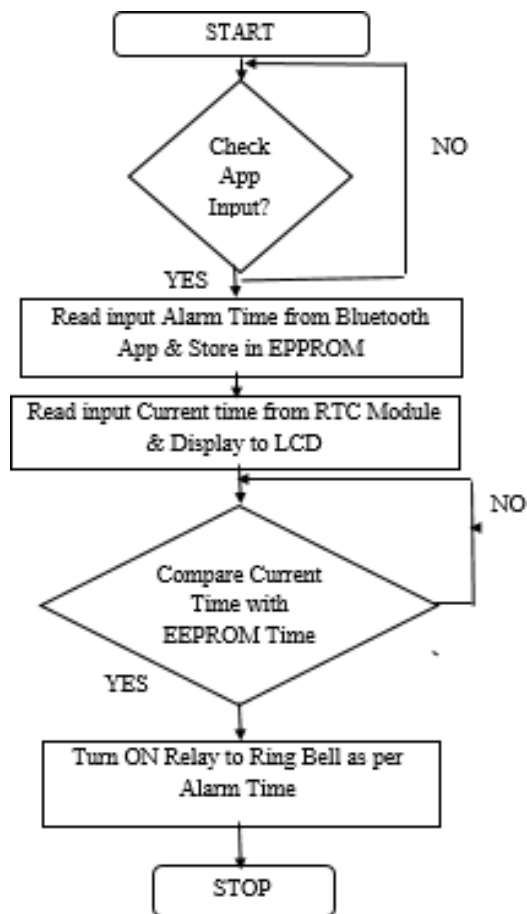
Software:
II.   *Flowchart:*

Fig. II. Flowchart of proposed system

C.   *Result:*
I.   *Design Calculations:*
1.   Power supply-12v DC
2.   LCD Display- 16*2
3.   Bluetooth Module-HC 05
4.   RTC- DE1307 RTC
5.   Relay Module- 1 channel 5v Dc
6.   Buzzer Range- 1000 Meter

Fig: Automatic Collage Bell

III.   CONCLUSION

An automatic collage bell system using a microcontroller can greatly enhance efficiency and convenience for scheduling and announcing classes, breaks, and other events. The microcontroller can be programmed to trigger bells at specific time based on predefined schedule, reducing the need for manual interference and ensuring timely notifications throughout the campus. This project helps to manage the schedule and works automatically according to it.

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