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Multipurpose Near Field Communication

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Abstract: ***Near field communication (NFC) is a short-range wireless protocol that allows users to connect devices and access content and services by simply holding enabled devices near each other. Many of the existing applications (ticketing, purchasing, device configuration, etc.) use NFC as a method to transfer unique identifiers which then inform a larger system. An innovative method of designing a multi-purpose near field communication system using RF encoder and decoder. 4-bit encoder and decoder are used for wireless communication so that we are going to use 434 mhz rf receiver and transmitter chip .It will control multiple devices at a time. By using RF encoder we can store data without encoder we can't send data.***

Keywords: ***RF encoder, RF decoder, Driver, Micro controller, RS232 MAX. Power will get through encoder from drivers then it will transmit by glowing LED and next bulb will glow after taking some delay then it will glow.***

I. INTRODUCTION

NFC is a very important technique. Here will be the integration of technology in mobile phones to make people's lives much easier. Among those companies Nokia and some otxher companies in the market today with the presence of NFC in mobile phones of their own. Will be part of mobile phones in the future. NFC has a lot of applications in everyday life. Near-field (or near-field) communication (NFC) is a form of short-range (radiofrequency), low-power wireless communication technology for electronic devices which allows them to communicate with others by simply touching or bringing them at very close distance. This act of communication is called 'tap-in' or 'to tap and go'. The NFC communication protocol usually occurs between either two active devices such as smartphones and laptops or even between an NFC device and a passive (or unpowered) 'tag'.

II. LITERATURE SURVEY

NFC is a subset of Radio Frequency Identification (RFID) with a shorter communication range for security purposes. The first patent to be associated with the Abbreviation RFID was granted to Charles Walton in 1983. In 1991, computer scientist Mark Weiser brought to light the concept of "ubiquitous computing" a futuristic vision of the technology as "an invisible, integral part of the way which people live their lives". He criticized the personal computer and predicted that digital information would be "embodied," or brought into physical space, by hundreds of small, networked computers that would blend naturally into their environment. In 2002, Philips and Sony Electronics announced a cooperative plan to work together on a new wireless technology which will allow consumer devices to "talk" to each other (McHugh and Yarmey 2014; Richard, 2002). In 2003, Sony and Philips created near field communication (NFC), and later that year the
International Organization for Standardization adopted ISO/IEC 18092, an interface and protocol specification that serves as the foundation for NFC's functionality.

In 2004, Nokia, Philips, and Sony established the Near Field Communication (NFC) Forum to promote and develop the new technology. Though the NFC Forum formed in 2004, it wasn't until 2006 the first set of specifications for NFC tags were produced by the group (Near Field Communication, 2014). In 2006, the specifications for "smart" posters were also created. Smart posters hold information that an NFC compatible device can read when passed over it. It can provide all types of information, such as information about a famous archaeological piece of artwork shown in a museum or a short biography of a famous person's life

HARDWARE

NFC is that to control devices from short range for that we are going to use some of the hardware components such as

1. ATMEL 89S52 MICRO CONTROLLER
2. DRIVERS (ULN2803)
3. RF ENCODER AND DECODER
4. IR SENSOR

III. ATMEL89S52 MICRO CONTROLLER

The AT89S52 is a low-power, high-performance CMOS 8-bit microcontroller with 8K bytes of in-system programmable Flash memory. The device is manufactured using Atmel's high-density non volatile memory technology and is compatible with the industry- standard 80C51 instruction set and pin out. The on-chip Flash allows the program memory to be reprogrammed in-system or by a conventional non volatile memory programmer. By combining a versatile 8-bit CPU with in-system programmable Flash on a monolithic chip, the Atmel AT89S52 is a powerful microcontroller which provides a highly-flexible and cost-effective solution to many embedded control applications.

IV. DRIVERS(ULN2803)

The ULN2801A-ULN2805Aeach contain eight darlington transistors with common emitters and integral suppression diodes for inductive loads. Each darlington features a peak load current rating of 600mA (500mA continuous) and can withstand at least50V in the off state. Outputs may be paralleled for higher current capability. Five versions are available to simplify interfacing to standard logic families: the ULN2801Ais designed for general purpose applications with a current limit resistor; theULN2802Ahas a 10.5kW input resistor and zener for 14-25VPMOS; theULN2803Ahas a 2.7kW input resistor for 5V TTL and CMOS; the ULN2804A has a 10.5kW input resistor for 6-15V CMOS and the ULN2805A is designed to sink a minimum of 350mA for standard and Schottky TTL where higher output current is required. All types are supplied in an 18-lead plastic DIP with a copper lead from and feature the convenient in put opposite- output pin out to simplify board layout.

V. RF ENCODER AND DECODER

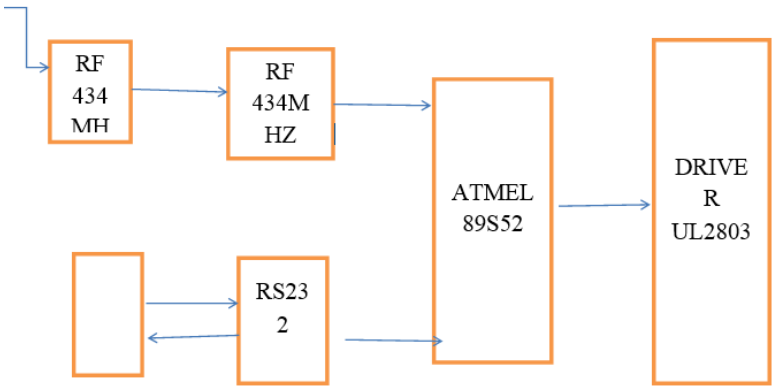
The 212 encoders are a series of CMOS LSIs for remote control system applications. They are capable of encoding information which consists of N address bits and 12_N data bits. Each address/ data input can be set to one of the two logic states. The programme addresses/data are transmitted together with the header bits via an RF or an infrared transmission medium upon receipt of a trigger signal. The capability to select a TE trigger on the HT12E or a DATA trigger on the HT12A further enhances the application flexibility of the 212 series of encoders. The HT12A additionally provides a 38 kHz carrier
For infrared systems.

The 2 12 decoders are a series of CMOS LSIs for remote control system applications. They are paired with Holtek_s 2 12 series of encoders (refer to the encoder/decoder cross reference table). For proper operation, a pair of encoder/decoder with the same number of addresses and data format should be chosen. The decoders receive serial addresses and data from a programme 2 12 series of encoders that are transmitted by a carrier using an RF or an IR transmission medium. They compare the serial input data three times continuously with their local addresses.

VI. BLOCK DIAGRAM

RECEIVER BLOCK WORKING

In this receiver block primary transformer will get 230v from the power supply then secondary transformer will receive from the primary. The secondary transformer will get 12v AC to the voltage regulator. To avoid AC fluctuations we will use filter capacitor. From the receiver block then it will go to transmitter block by passing through micro controller and drivers.



SOFTWARE:

- Kel compeller
- Micro controller software
- Assembly language

APPLICATION

- This multi purpose near field system is mainly used in industries.
- This is also used for domestic purpose.

CONCLUSION

NFC technology is a short-range wireless technology playing a significant role in the information environment. NFC tries to harmonize today's different contactless technologies, presenting current and future solutions as payment, ticketing, access control, information collection and exchange, transportation, health care, social networking as well as education. With the huge observed development in contacting technologies and all of these have been consolidated into one device, NFC tries to make people's lives easier and more convenient by enabling more intuitive access to new media and content services.So that we can control multiple devices at a time with short distance.

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