VISVESVARAYA TECHNOLOGICAL UNIVERSITY

MINI PROJECT REPORT ON

"LUGGAGE SECURITY ALARM"

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

CERTIFICATE

Certified that the mini project work entitled "**Luggage security alarm**" carried out by **Divyashree R (1NH18EC711), Sharanya KN(1NH18EC747), Sowmya G(1NH18EC714), Devika K(1NH18ME037)** bonafide students of Electronics and Communication Department , New Horizon College of Engineering, Bangalore.

The mini project report has been approved as it satisfies the academic requirements in respect of mini project work prescribed for the said degree.

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External Viva

Name of Examiner	Signature with Date
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ABSTRACT

During our travels by train and bus, we carry many important things and there is a fear that someone will lift our luggage. To overcome these fears, here is an easy circuit based on the NAND gate.

In addition to the circuit's basic building block CD4011, some components such as resistors, capacitors and transistor and relay are used to save your important things from robbery with the help of this easy circuit. When someone tries to unlock it as a result of its wire splitting and it generates an alarm beep. You must know the truth table of NAND Gate to work.

Advantages of Luggage Security System:

- This security system is used to protect your valuables when someone tries to steal them by producing a sound.
- It can be operated with 3V, so power consumption is very low. Ing It is portable when traveling because it has fewer components.

Components required:

1. Relay switch
2. Diode 1N4001
3. Resistor

4. Capacitor

5. 2N2222 transistor

6. NAND gate

7. IC CD 4011

8. Connecting Wires

9. Bread Board

INTRODUCTION

Safety is always at its highest priority for most of us. Safety is the main factor t hat we would look at priority when we are traveling with luggage's, which hold a lot of valuables. As already mentioned, we always carry any valuables with us, the first thing we ensure is, is it safe !. No matter how many times we ensure we still have the fear of losing our valuables. Growth in the digital field has foun d solutions to most of our daily life problems. Most of our day-to-day problems have all found their way through the various trends that digital ele ctronics have introduced. The improvisation in technology has solved a lot of prob lems, and trends in digital electronics are serving to be a boon to mankind.

The main reason for fear is that the number of thefts and robbery has increased to a greater extent. Unemployment, poverty may be the cause of this but still st ealing others' property is a serious crime. The only way to stop this is by alertin

g people with proper security arrangements. Bus hijacking is what we hear comm only, this is where the fear of crime lies. We have seen people stepping ahead fo r protection, they use chains, lock as security arrangements to secure their luggag e.

This might be a nice try, but it's still not sufficient to reassure ourselves that we are in safe hands, our property is in a safe zone. Locks and chain can be easily broken and our attempt for safety goes into vain. And, therefore, to reassure our selves here we have presented a simple alarm circuit to alert us from such a sit uation.

One such solution is the luggage security alarm. The meaning is very evident fro m the name itself. This circuit basically ensures that our luggage is secure and sa fe. When we travel in bus or train we are always very aware of our luggage. No matter how strong the Analog lock systems are, we still have the fear that there are chances for the lock to get slashed and losing our valuables.

This digital circuit solves the issue for us. So whenever someone tries to lift the luggage, the owner gets an indication from the alarm as the continuity in the circ uit breaks. As a result with an audio alarm indication it is easy to ensure that o ur luggage is safe, and hence we can have a peaceful and sound journey. This se curity just ensures that our luggage and valuables are all safe during the journey. Especially during the night train and bus journey we can ensure our valuables a re actually safe. So this circuit plays its role in providing safety for our valuables.

LITERATURE SURVEY

Title: Luggage Security alarm

Survey

Initially luggage were taken care by the ones who bare it which was hectic for them to manage or look after while travelling during nights. Thereby the only security for the luggage was the owner.

Later came the CD4011 IC based luggage security alarm which beeps when someone lifts it in our absence. This basic electronic circuit is easy to rig up and also cheap as it uses NAND gates as its main concept. This one small security alarm provides security and also let's us travel peacefully during nights and also during daytime. Typical home security.

In future the luggage security is going to get implemented using GMS module which make the project more advanced by sending the message to the owner if their luggage is lifted by someone. This is used in crowded areas where here is lot of noise and we can't listen to alarm. Hence this can be the best method for protecting our device.

Work on developing the European benchmark for digital cellular voice telecommunications began in 1983, when the European Conference of Postal and Telecommunication Administration (CEPT) Group established the Special Mobile (GSM) Committee and later prov

ided a permanent technical support group with its Paris headquarters. Five years later, in 1987, 15 delegates from 13 European countries signed the Memorandum of Understandi ng EU standards have been approved to make Copenhagen, and GSM, a mandatory stand ard for developing and deploying a common cell phone system across Europe. The decisi on to develop the continental standard eventually led to a unified, open and standards-based network that is larger than the United States.

In February 1987, Europe produced the first agreed GSM technical specification. Minister s of the four major EU countries consolidated their political support for the GSM with t he announcement of the Global Information Networks Ban in May, and the MoU was si gned for the GSM in September. The memorandum of understanding obligates mobile ph one operators across Europe to invest in new GSM networks at an ambitious general dat e.

In this short span of 38 weeks, all Europe (countries and industries) have supported GS M in a rare unit and are guided by four public officials: Armin Silberhorn (Germany), S tephen Temple (United Kingdom), Philippe Dupuis (France) and Renzo Filly (Italy). In 1 989, the Group Special Mobile Committee was transferred from CEPT to the European Telecommunications Standards Institute (ETSI).

At the same time, France and Germany signed a joint development agreement in 1984 a nd Italy and the United Kingdom in 1986. In 1986, the European Commission proposed to reserve the 900 MHz spectrum band for GSM. Former Finnish Prime Minister Harry Holceri calls the world's first GSM on July 1, 1991, Kareena Suonio (deputy mayor of t he city Tampere) Using a network built by Telenokia and Siemens and managed by Rad ioLinja. The following year, the first short message service (SMS or "text message") was sent, and Vodafone UK and Telecom Finland signed the first international roaming agre ement.

Work on extending the GSM standard to the 1800 MHz frequency band began in 1991 and the first 1800 MHz network was called the DCS 1800 in the United Kingdom in 19 93. Also, Telecom Australia became the first network operator to implement GSM. A net work outside of Europe and the first practical handheld GSM mobile phone became avail able.

In 1995, fax, data and SMS messaging services were commercially launched, the first 19 00 MHz GSM network implemented in the United States, and GSM subscribers worldwi de exceeded 10 million. In the same year, the GSM Association was formed. Prepaid G SM SIM cards were launched in 1996 and GSM subscribers worldwide exceeded 100 mi llion in 1998.

In 2000, the first GPRS commercial services were launched and the first GPRS compatib le phones were put up for sale. In 2001, the first UMTS network (W-
CDMA) was launched, a 3G technology that is not part of GSM. Global GSM subscribe rs exceed 500 million. In 2002, the first multimedia messaging service (MMS) was intro duced and the first GSM network was laid
For operation in the 800 MHz frequency band. Edge Services began operating on the net work in 2003, and the number of GSM subscribers worldwide exceeded one billion in 2 004.

By 2005, GSM Networks accounted for over 75% of the global cellular network market, serving over 1.5 billion subscribers. In 2005, the first network with HSDPA capability was also implemented. The first HSUPA network was launched in 2007. (High-Speed Packet Access (HSPA) and its uplink and downlink versions of 3G technologies, not pa rt of GSM). Global GSM subscribers exceeded three billion in 2008.

Estimated by the GSM Association in 2010, technologies defined in the GSM standard s

erve 80% of the mobile market, cover more than 5 billion people in more than 212 cou ntries and territories, and GSM is the most ubiquitous of cellular networks.

GSM is a second-
generation (2G) standard that uses time segment multiple access spectrum exchange (TD MA) issued by the European Telecommunications Standards Institute (ETSI). The GSM s tandard does not include 3G's Code Division Multiple Access (CDMA) technology Unive rsal Mobile Telecommunications System (UMTS) or Orthogonal Frequency Division Multi ple Access Technology (OFDMA) 4G LTE Standards issued by 3GPP.

GSM, for the first time, set the standard for Europe for wireless networks. It was adopte d by many countries outside Europe. This allowed subscribers to use other GSM network s with roaming agreements. The general standard reduced research and development costs , because hardware and software can be sold to the local market with only small variant s.

Telstra in Australia closed its GSM2G network on December 1, 2016, the first mobile n etwork operator to dismantle the GSM network. [14] AT&T Mobility in the United State s is the second mobile provider to shut down its GSM network (January 1, 2017). [15] Australia's Optus Australia closed its GSM 2G network on August 1, 2017 as part of O ptus GSM .Western Australia and the Northern Territory were closed in early April 2017 . [16] Singapore completely shut down 2G services in April 2017.

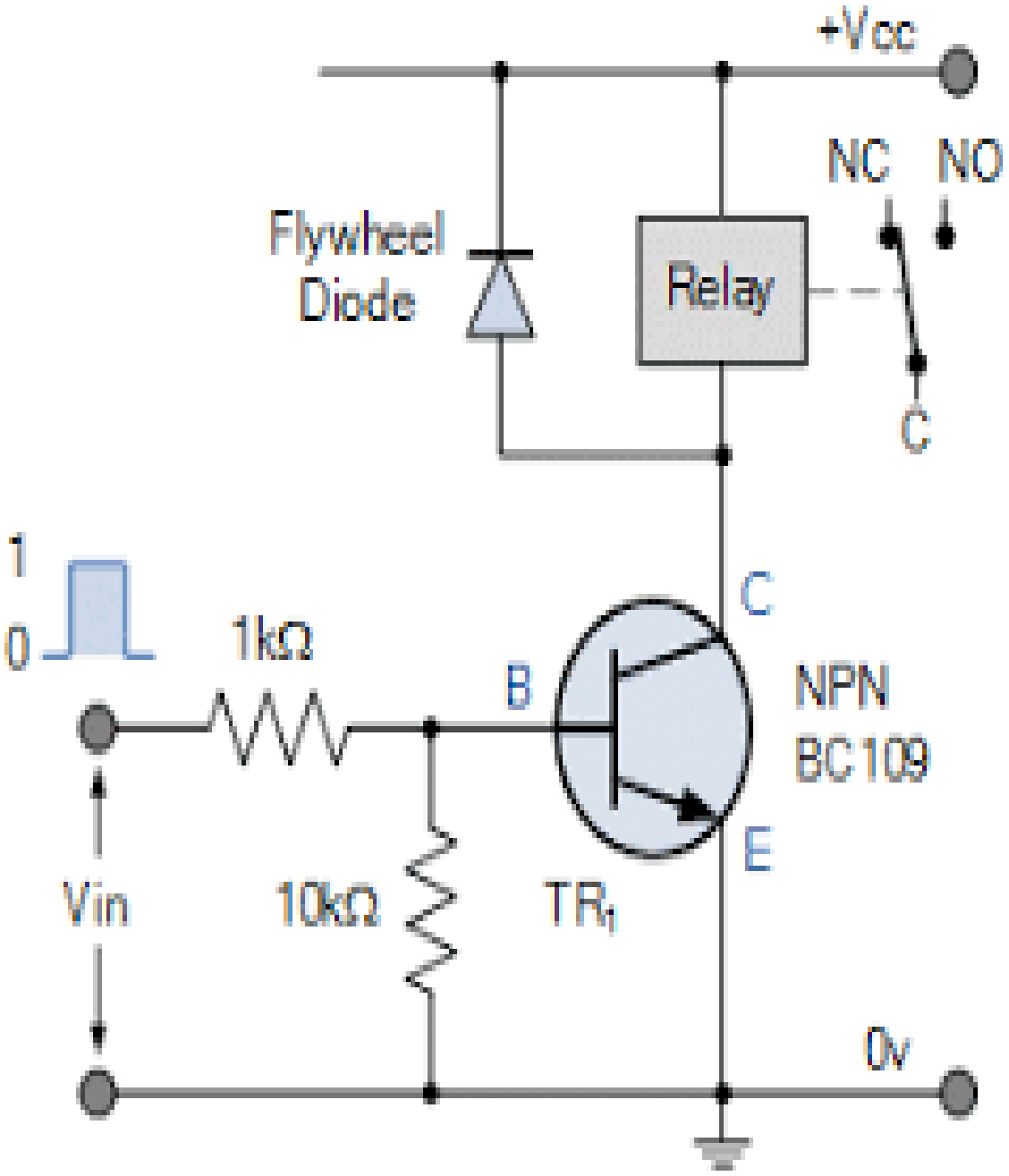
RELAY SWITCH

A relay is an electrically operated switch. It consists of a set of input terminals for one or more control signals and a set of operational contact terminals. The switch can have any number of contacts in many forms, such as contacts, break contacts, or combinations thereof. Relays are used when it is necessary to control a circuit with a low power independent signal or when multiple circuits must be controlled by a signal. The relays were used for the first time in long distance telegraph circuits as signal repeaters: they update the incoming signal of a circuit by transmitting it to another circuit. Relays have been widely used in telephone exchanges and early computers to perform logical operations.

The traditional form of a relay uses an electromagnet to close or open the contacts, but other operating principles have been invented, such as semiconductor relays that use the properties of the semiconductor to control without resorting to moving parts. Relays with calibrated operating characteristics and sometimes multiple operating coils are used to protect the electrical circuits from overloads or failures. In modern power systems, these functions are provided by digital instruments, also known as protection relays. The lock relays require only a control power pulse to operate the switch persistently. Another pulse applied to a second set of control terminals, or a pulse of opposite polarity, resets the switch, while repeated pulses of the same type have no effect. Magnetic lock relays are useful in applications where interrupted power should not affect the circuits controlled by the relay. A simple electromagnetic relay consists of a coil of wire wrapped around a soft iron core (a solenoid), an iron yoke providing a path of low resistance to magnetic flux, a moving iron armor and one or more sets of contacts (There are two contacts on the relay on the picture). The armor is hinged to the yoke and is mechanically attached t

o one or more sets of movable contacts. The armature is held in place by a spring, so t hat when the relay is de-
energized, there is a gap in the magnetic circuit. In this condition, one of the two sets o f relay contacts on the picture is closed and the other set is open. Other relays may hav e more or less sets of contacts depending on their function. The relay in the picture also includes a cable that connects the armor to the screed. This ensures the continuity of th e circuit between the movable contacts in the armature and the circuit track in the printe d circuit board (PCB) through the cylinder head, which is soldered to the PCB.

When an electric current passes through the coil, it generates a magnetic field that activa tes the armature and the movement of the moving contacts that results establishes or bre aks (depending on the construction) a connection with a fixed contact. If the set of cont acts has closed when the relay has de-
energized, the movement opens the contacts and interrupts the connection, and conversely if the contacts are open. When the current in the coil is disconnected, the armature is r eturned by a force about half as strong as the magnetic force in its relaxed position. Ge nerally, this force is provided by a spring, but gravity is also commonly used in industri al motor starters. Most relays are built to work quickly. In a low voltage application, thi s reduces the noise; in a high voltage or current application reduces the electric arc.


+Vcc
NC
NO
Flywheel
Diode
Relay
C
1
0
1kΩ
C
B
NPN
BC109
E
Vin
10kΩ
TR1
0v

RESISTOR

A resistor is a passive twocomponent electrical component that implements an electrical r esistor as a circuit element. In electronic circuits, resistors are used to reduce current flo w, adjust signal levels, divide voltages, bias active elements, and terminate transmission l ines, among other uses. High power resistors that can dissipate many watts of electrical energy in the form of heat can be used in motor controls, in power distribution systems, or as test loads for generators.

Fixed resistors have resistances that change only slightly with temperature, duration or o perating voltage. Variable resistors may be used to adjust circuit elements (such as a vol ume control or lamp dimmer), or as devices for detecting heat, light, moisture, force, or chemical activity.

Resistors are common elements of electrical networks and electronic circuits and are ubiq uitous in electronic equipment. Practical resistors as discrete components may be compose d of various compounds and forms. Resistors are also implemented in integrated circuits.

Carbon Composition Resistors (CCRs) are formed by a solid cylindrical resistive element with integrated cables or metal caps to which the conductive cables are attached. The r esistance body is protected with paint or plastic. Resistances to the carbon composition o f the early twentieth century had uninsulated bodies; The conductive cables were wrappe d around the ends of the rod of the resistance element and soldered. The total resistance was painted to color code its value.

The resistive element consists of a mixture of finely pulverized carbon and an insulating material, usually ceramic. A resin holds the mixture together. Resistance is determined b y the ratio of filler material (ceramic powder) to carbon. Higher concentrations of carbon , which is a good conductor, result in lower resistance. Resistances to carbon compositio n were commonly used in the 1960s and earlier, but are no longer popular for general u

se because other types have better specifications, such as tolerance, voltage, and voltage dependence

Resistance to carbon composition changes in value when subjected to overvoltages. In addition, if the internal moisture content, due to prolonged exposure to a humid environment, is significant, the heat of welding creates an irreversible change in the resistance value. Resistances to carbon composition have little stability over time and, therefore, have been classified in the factory for a tolerance of 5% at best. These resistors are not inductive, which has advantages when used in surge protection and voltage pulse reduction applications. Carbon composition resistors have a greater ability to withstand overloads due to component size.

Resistances to carbon composition are still available, but they are relatively expensive. The values

ranged from fractions of one ohm to 22 mega Ahms. Because of their high price, these resistors are no longer used in most applications. However, they are used in power supplies and welding controls. They are also requested for the repair of old electronic equipment for which authenticity is a factor

CAPACITOR

A capacitor is a device that stores electrical energy in an electric field. It is a passive el ectronic component with two terminals. The effect of a capacitor is called capacitance. A lthough there is some capacitance between two nearby electrical conductors in a circuit, a capacitor is a component designed to add capacitance to a circuit. The capacitor was o riginally known as a capacitor or capacitor. This name and its related words are still wi dely used in many languages, but rarely in English, with the exception of condenser mic rophones, also known as condenser microphones.

The physical form and construction of the practical capacitors vary widely and many typ es of capacitors are commonly used. Most capacitors contain at least two electrical cond uctors often in the form of metal plates or surfaces separated by a dielectric medium. A

conductor may be a sheet, a thin film, a sintered metal bead, or an electrolyte. The no n-
conductive dielectric acts to increase the capacitance of the capacitor. Commonly used m aterials such as dielectrics include glass, ceramic, plastic films, paper, mica, air and oxid e layers.

Capacitors are widely used as parts of electrical circuits in many common electrical dev ices. Unlike a resistor, an ideal capacitor does not dissipate energy, although actual capac itors dissipate a small amount. (See Non-
Ideal Behavior) When an electrical potential is applied, a voltage across a capacitor, for example, when a capacitor is connected to a battery, an electric field develops across the dielectric, causing a positive net charge accumulates on one plate and a net negative ch arge to be collected on the other plate. No current actually flows through the dielectric.

However, there is a charge flow in the source circuit. If the condition is maintained suf ficiently, the current through the source circuit ceases. If a variable voltage is applied ov er time through the capacitor leads, the source experiences a DC current because of the charge and discharge cycles of the capacitor.
A capacitor consists of two conductors separated by a non-conductive region. The non-conductive region may be a vacuum or an electrical insulating material called dielectric.

Examples of dielectric media are glass, air, paper, plastic, ceramic and even a semicondu ctor depletion region chemically identical to the conductors. According to Coulomb's law, a charge exerted on one conductor exerts a force on the charge carriers in the other co nductor, attracting a charge of opposite polarity and repelled in the form of polarity char ges, so that a charge of opposite polarity is induced in the conductor. Surface of the oth er driver. The conductors maintain equal and opposite charges on their facing surfaces [1 8, and the dielectric develops an electric field.

2N2222 TRANSISTOR

2N2222 The is a bipolar NPN junction transistor (BJT) used in low power amplifi cation or switching applications. It is designed for low to medium current, low po wer, medium voltage and can operate at moderately high speeds. It was originally manufactured in the TO-
18 canister, as shown in the picture.2N2222 is considered a very common transistor, and is used as an example NPN transistor. It is often used as a small signal transistor a nd remains a small versatile transistor of lasting popularity. Replacements for the 2N2222 are now commonly available in the cheapest package of the TO-
92, known as PN2222 or P2N2222, which has similar specifications with the exception o

f the lowest maximum collector current. The P2N2222 has a different pin order than the 2N2222 metal case, its transmitter and collector connections being switched; Other plasti c box transistors also have different pins.

Individual transistors are also available in a number of different surface mount boxes, an d several manufacturers offer surface mount boxes incorporating multiple 2N2222 transist ors in a package as a set of transistors. The general specifications of the different varian ts are similar, the most important difference being the maximum current and power dissi pation allowed.

The 2N3904 is an NPN transistor that can only change one third of the current of 2N22 22, but has similar characteristics. 2N3904 exhibits its peak of direct gain (beta) at a cur rent less than 2N2222 and is useful in applications with IC amplifier reduced, for examp le (gain peak at 10 mA for 2N3904 but at 150 mA for 2N2222)

The 2N2222, of higher power, is a very similar NPN transistor, able to switch safely thr ee times more current than the 2N3904.

However, in many applications, such as variable frequency oscillators, in which lower cu rrents are used to minimize thermal heating and thermal drift resulting from the fundame ntal frequency, the higher current capacitance of 2N2222 does not provides no benefit. . While the 2N2222 is optimized to achieve its highest gain at currents of about 150 mA, the 2N3904 is optimized for currents of about 10 mA. The JEDEC registration of a de vice number ensures that all parts offered with this number comply with specific ratings. The parameters recorded by JEDEC include limit dimensions, low signal current gain, tr ansition frequency, maximum voltage resistance values, current classification, power and t emperature dissipation classification and others, measured in standard test conditions. The other references will have different parameters. The exact specifications depend on the manufacturer, the type of case and the variation. It is therefore important to consult the data sheet to know the exact part number and the manufacture.The general specifications

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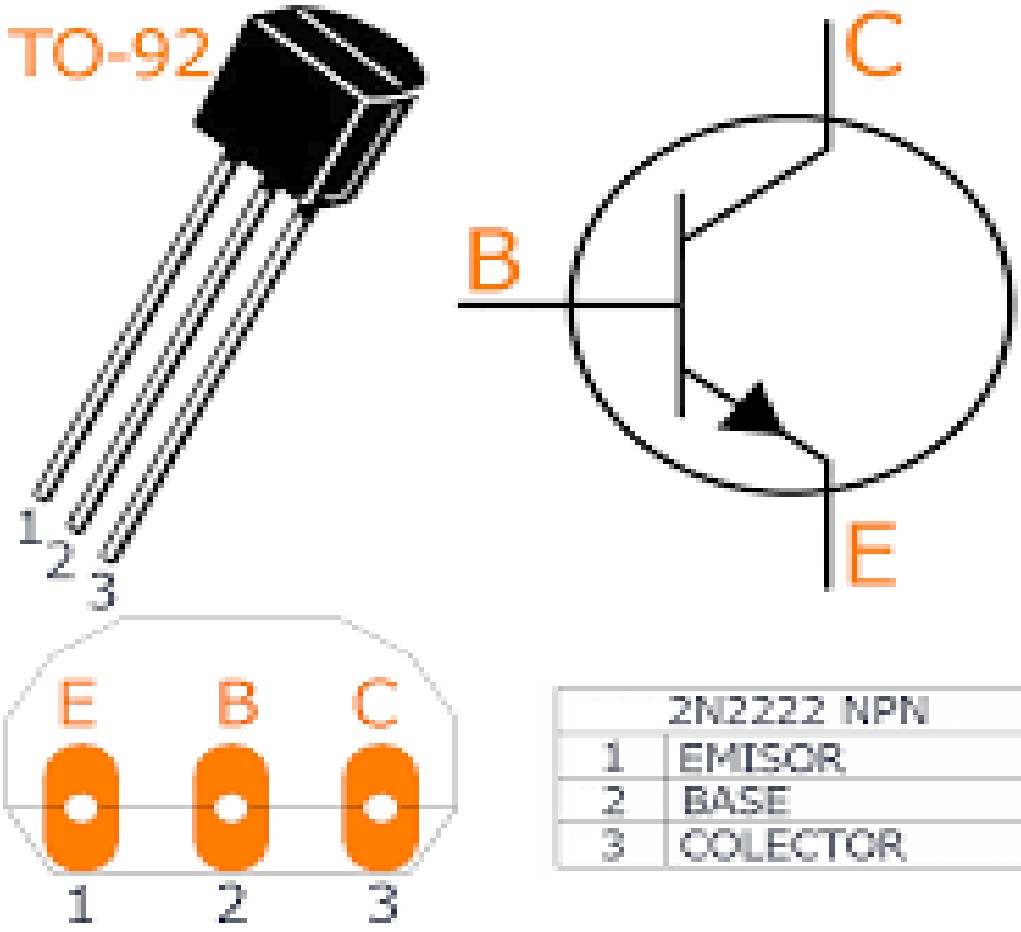
In many applications, such as variable frequency oscillators, in which lower currents are used to minimize thermal heating and thermal drift resulting from the fundamental frequency, the higher current capacitance of 2N2222 does not provides no benefit. . While the 2N2222 is optimized to achieve its highest gain at currents of about 150 mA, the 2N3904 is optimized for currents of about 10 mA.

2N2222 NPN



2N2222 NPN	
1	EMISOR
2	BASE
3	COLECTOR

CONNECTING WIRES

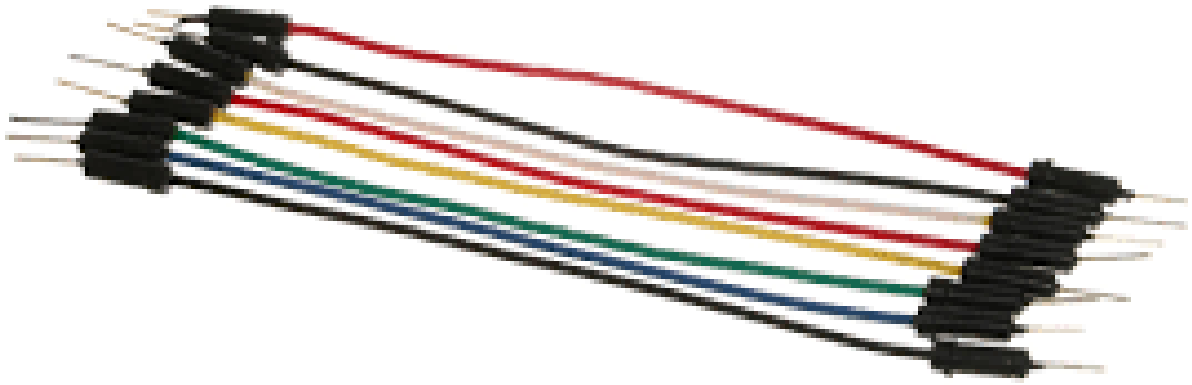
A wire is a single strand or a metal rod, generally cylindrical, flexible. The cables are used to support mechanical loads or electrical and telecommunications signals. The wire is generally formed by pulling the metal through a hole in a die or an extraction plate. Wire gauges exist in several standard sizes, expressed in terms of caliber number. The term "cable" is also used more freely to refer to a set of such wires, as in the "multi-wire cable", which is more properly called a mechanical wire or wire. The yarn is in the form of a solid core, braided or braided.

Although its cross section is generally circular, the cable may be made in square, hexagonal, flattened rectangular or other cross sections, for decorative or technical purposes, such as high efficiency coils on the loudspeakers. Helical spring, such as the Slinky toy, are made from special flattened wire. Useful for wiring test plates. Solid cable is cheaper to manufacture than braided cable and is used where there is little need for flexibility in the cable. Solid wire also provides mechanical strength; and, because it has relatively less surface exposed to corrosive attacks, protection against the environment. The braided cable is composed of several small cables grouped together or coiled to form a larger conductor.

The braided cable is more flexible than the rigid cable of the same section. Braided wire is used when greater resistance to metal fatigue is required. Such situations include connections between printed circuit boards in multi-
printed circuit board devices, where the rigidity of the solid cable would produce excessive voltage as a result of movement during assembly or maintenance; A.C. line cables for appliances; musical instrument cables; computer mouse cables; welding electrode cables;

control cables that connect the moving parts of the machine; cables for mining machines; machine cables to hang out; and many others

At high frequency, the current moves near the surface of the cable under the effect of t he skin, resulting in a greater loss of power in the cable. It may seem that the braided cable reduces this effect because the total surface area of the wires is greater than the equivalent full cable surface, but the normal braided cable does not reduce the effect of the skin because all the wires are short-circuited. And they behave together. As a single driver. A braided cable will have a hig her resistance than a full cable of the same diameter because its cross section is not enti rely copper; There are inevitable spaces between the filaments (this is the problem of wr apping circles for circles in a circle). It is said that a twisted cable with the same cross section of the conductor as a solid cable has the same equivalent rating and always has a larger diameter.



BREAD BOARD

A test plate is a building block for prototyping electronic products. Originally, the word referred to a literal breadboard, a piece of polished wood used to cut bread. In the 1970 s, the seamless test plate (also called connection plate, terminal dot matrix) was available and today the term "test plate" is commonly used to designate these. Because the seaml ess board does not require soldering, it is reusable. This makes it easier to create tempor ary prototypes and experiment with circuit design. For this reason, homogeneous test plat es are also popular among students and in technology education.

Previous panel types did not have this property. A tape card (Veroboard) and similar prototype circuit boards, used for the construction of unique semi-permanent or welded prototypes, can not be easily reused. Prototypes of a variety of electronic systems can be created using test cards, ranging from small analog and digital circuits to complete central processing units .A modern power socket without solder plate consists of a perforated plastic block with numerous spring clips made of alpaca alloy and tinned phosphor bronze under the perforations. Clips are often called points of contact or points of contact. The number of bonding points is often indicated in the specification of the test plate.

The space between the clips (main step) is usually 0.1 inches (2.54 mm). Integrated circuits (ICs) in inline double packets (DIPs) can be inserted to raise the center line of the block. Interconnect cables and discrete component cables (such as capacitors, resistors, and inductors) can be inserted into the remaining free holes to complete the circuit. When integrated circuits are not used, discrete components and connection cables may use one of the holes. Typically, spring clips have a capacity of 1 amp at 5 volts and 0.333 amps at 15 volts (5 watts). The edge of the board has male and female dovetail notches, which allows them to be assembled to form a large board. Due to the relatively large parasitic capacitance compared to a properly distributed printed circuit board (about 2 pF between adjacent contact columns), high inductance of some

connections and relatively high and low reproducible contact resistance The test plates without welding are limited to operation at relatively low frequencies, generally less than 10 MHz, depending on the nature of the circuit. Relatively high contact resistance may

already be a problem for some DC and very low frequency circuits. Solderless test pla tes are further limited by their nominal voltage and current ratings.

No solder test plates are generally not compatible with devices with Surface Mount Tech nology (SMD) or components with a grid spacing other than 0.1 inch (2.54 mm). In add ition, they can not support components with multiple rows of connectors if they do not match the dual line design. It is impossible to provide the correct electrical connectivity. Sometimes, small circuit board adapters called "connection adapters" can be used to ada pt the component to the card. These adapters carry one or more components and have m ale connector pins spaced 0.1 inch apart. (2.54 mm) single or double line version, for in sertion into a seamless test plate.

Larger components are usually connected to a plug in the adapter, while smaller compon ents (for example, SMD resistors) are usually soldered directly to the adapter. The adapte r connects to the test card via the 0.1 inch connectors. (2.54 mm). However, the need to solder the components in the adapter deprives some of the benefits of using a transpare nt card.

Integrated circuits (ICs) in inline double packets (DIPs) can be inserted to raise the cente r line of the block. Interconnect cables and discrete component cables (such as capacitors , resistors, and inductors) can be inserted into the remaining free holes to complete the c ircuit. When integrated circuits are not used, discrete components and connection cables may use one of the holes. Typically, spring clips have a capacity of 1 amp at 5 volts a nd 0.333 amps at 15 volts (5 watts). The edge of the board has male and female doveta il notches, which allows them to be assembled to form a large board. Due to the relativ ely large parasitic capacitance compared to a properly distributed printed circuit board (a bout 2 pF between adjacent contact columns), high inductance of some connections and r

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In addition, they can not support components with multiple rows of connectors if they do not match the dual line design. It is impossible to provide the correct electrical conn ectivity. Sometimes, small circuit board adapters called "connection adapters" can be used to adapt the component to the card. These adapters carry one or more components and have male connector pins spaced 0.1 inch apart. (2.54 mm) single or double line version, for insertion into a seamless test plate.

GSM SECURITY

GSM was meant to be a secure wireless system. Pre-
shared key and challenge response and user visualization using google encryption on the air are considered. However, GSM is vulnerable to different types of attacks, each targeti ng a different part of the network.

The development of UMTS introduced the Aichlik Universal Subscriber Identity Module (USIM), which uses a long authentication key to provide greater security, as well as net work and user interaction with each other, but only authenticates users in the GSM netw ork (and vice versa). Therefore, the security model offers privacy and visibility, but limit ed visualization capabilities without denial.

GSM uses several cryptographic algorithms for security. A5/1, A5/2 and A5/3 flow ciphe rs are used to ensure sound privacy over the air. A5/1 was first developed and is a rob ust algorithm used in Europe and the United States; A 5/2 is weak and is used in other countries. There are serious weaknesses in both algorithms: A5 / 2 can be broken in re al time with an encrypted text-
only attack, and in January 2007, Hacker's Choice launched the A5/1 decryption scheme with FPGA, allowing it to break A5/1 with a rainbow table attack. The system supports multiple algorithms, so administrators can replace that cryptographic version with a strong er one.

Since 2000, various attempts have been made to understand the A5 encryption algorithm. The algorithms for both A5/1 and A5/2 are broken and their cryptanalysis has been rev ealed in the literature. As an example, Carsten Nohl developed a series of rainbow tables (fixed values
that reduce the time required to conduct an attack) and found new sources for known oc

cupies plain text. It is possible to build "full GSM interceptor ... from open source components", but they have not done so due to legal concerns, he said. Nohl said that voice and text conversations could be avoided by pretending to be another user to listen to voicemail, call or send free online text messages via Motorola's mobile phone and decryption software.

GSM uses General Packet Radio Service (GPRS) for data transmission such as web browsing. Generally implemented GPRS ciphers were publicly broken in 2011. Researchers revealed flaws in the commonly used GEA / 1 and GEA / 2 encryption, and published the open source software "GPRSDecode" to detect GPRS networks. He also suggested Some operators do not like data (ie, using GEA / 0) to find traffic or protocols they do not like (for example, Skype), making customers unsafe. The GEA / 3 seems to be difficult to break and is still in use on some modern networks. If used with USIM prevent connections to duplicate base stations and lapse attacks, users are protected in the medium term, but migration to the 128-bit GEA / 4 is still recommended.

HISTORY

Work on developing the European benchmark for digital cellular voice telecommunications began in 1983, when the European Conference of Postal and Telecommunication Administration (CEPT) Group established the Special Mobile (GSM) Committee and later provided a permanent technical support group with its Paris headquarters. Five years later, in 1987, 15 delegates from 13 European countries signed the Memorandum of Understanding EU standards have been approved to make Copenhagen, and GSM, a mandatory standard for developing and deploying a common cell phone system across Europe. The decision to develop the continental standard eventually led to a unified, open and standards-based network that is larger than the United States.

In February 1987, Europe produced the first agreed GSM technical specification. Ministers of the four major EU countries consolidated their political support for the GSM with the announcement of the Global Information Networks Ban in May, and the MoU was signed for the GSM in September. The memorandum of understanding obligates mobile phone operators across Europe to invest in new GSM networks at an ambitious general date.

In this short span of 38 weeks, all Europe (countries and industries) have supported GSM in a rare unit and are guided by four public officials: Armin Silberhorn (Germany), Stephen Temple (United Kingdom), Philippe Dupuis (France) and Renzo Filly (Italy). In 1

989, the Group Special Mobile Committee was transferred from CEPT to the European Telecommunications Standards Institute (ETSI).

At the same time, France and Germany signed a joint development agreement in 1984 a nd Italy and the United Kingdom in 1986. In 1986, the European Commission proposed to reserve the 900 MHz spectrum band for GSM. Former Finnish Prime Minister Harry Holceri calls the world's first GSM on July 1, 1991, Kareena Suonio (deputy mayor of t he city Tampere) Using a network built by Telenokia and Siemens and managed by Rad ioLinja. The following year, the first short message service (SMS or "text message") was sent, and Vodafone UK and Telecom Finland signed the first international roaming agre ement.

Work on extending the GSM standard to the 1800 MHz frequency band began in 1991 and the first 1800 MHz network was called the DCS 1800 in the United Kingdom in 19 93. Also, Telecom Australia became the first network operator to implement GSM. A net work outside of Europe and the first practical handheld GSM mobile phone became avail able.

In 1995, fax, data and SMS messaging services were commercially launched, the first 19 00 MHz GSM network implemented in the United States, and GSM subscribers worldwi de exceeded 10 million. In the same year, the GSM Association was formed. Prepaid G SM SIM cards were launched in 1996 and GSM subscribers worldwide exceeded 100 mi llion in 1998.

In 2000, the first GPRS commercial services were launched and the first GPRS compatib le phones were put up for sale. In 2001, the first UMTS network (W-CDMA) was launched, a 3G technology that is not part of GSM. Global GSM subscribe rs exceed 500 million. In 2002, the first multimedia messaging service (MMS) was intro duced and the first GSM network was laid

For operation in the 800 MHz frequency band. Edge Services began operating on the net work in 2003, and the number of GSM subscribers worldwide exceeded one billion in 2 004.

By 2005, GSM Networks accounted for over 75% of the global cellular network market, serving over 1.5 billion subscribers. In 2005, the first network with HSDPA capability was also implemented. The first HSUPA network was launched in 2007. (High-Speed Packet Access (HSPA) and its uplink and downlink versions of 3G technologies, not pa rt of GSM). Global GSM subscribers exceeded three billion in 2008.

Estimated by the GSM Association in 2010, technologies defined in the GSM standard s erve 80% of the mobile market, cover more than 5 billion people in more than 212 cou ntries and territories, and GSM is the most ubiquitous of cellular networks.

GSM is a second-
generation (2G) standard that uses time segment multiple access spectrum exchange (TD MA) issued by the European Telecommunications Standards Institute (ETSI). The GSM s tandard does not include 3G's Code Division Multiple Access (CDMA) technology Unive rsal Mobile Telecommunications System (UMTS) or Orthogonal Frequency Division Multi ple Access Technology (OFDMA) 4G LTE Standards issued by 3GPP.

GSM, for the first time, set the standard for Europe for wireless networks. It was adopte d by many countries outside Europe. This allowed subscribers to use other GSM network s with roaming agreements. The general standard reduced research and development costs , because hardware and software can be sold to the local market with only small variant s.

Telstra in Australia closed its GSM2G network on December 1, 2016, the first mobile n etwork operator to dismantle the GSM network. [14] AT&T Mobility in the United State

s is the second mobile provider to shut down its GSM network (January 1, 2017). [15] Australia's Optus Australia closed its GSM 2G network on August 1, 2017 as part of O ptus GSM .Western Australia and the Northern Territory were closed in early April 2017 . [16] Singapore completely shut down 2G services in April 2017.

PROPOSED METHEDOLOGY

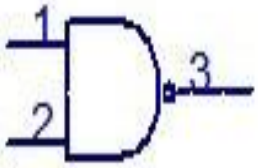
Principle of the NAND GATES :

- When any of the input states or both the input states go to the low state in the NAND gate, then the output will be high
- If both the inputs are at high state, then the output will be low at that case.

The truth table and logic diagram of NAND IC is given below :

2 Input NAND Gate

NAND Gate



TRUTH TABLE

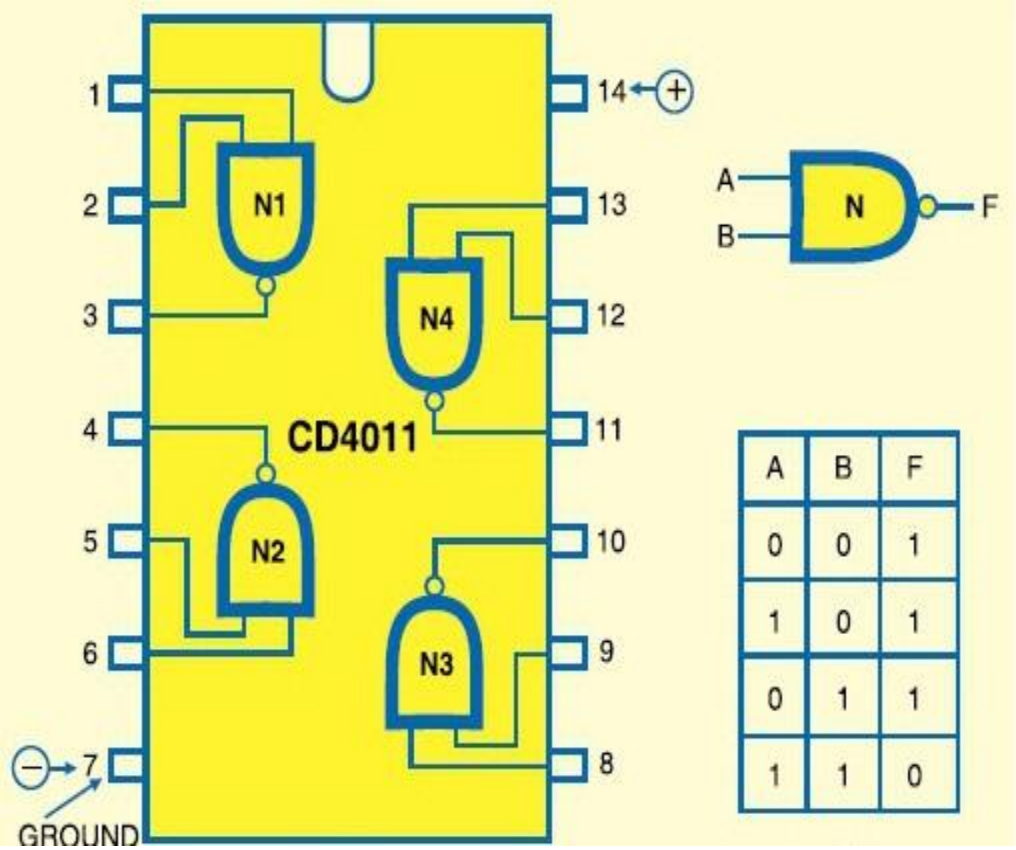
INPUTS		OUTPUT
X	Y	Z
0	0	1
0	1	1
1	0	1
1	1	0

IC CD4011

PIN DIAGRAM :

Below is the pin diagram of the CD 4011 (Supplementary Metal Oxide Semiconducto r Chip. It consists of 4 NAND gates, which provide 14 pin IC, pin number 14 to + VCC and 7 to ground.

The truth table for IC CD4011 remains the same as the NAND gate because IC CD4011 contains 4 NAND ICs, resulting in the same fact table.



A	B	F
0	0	1
1	0	1
0	1	1
1	1	0

PROJECT DESCRIPTION

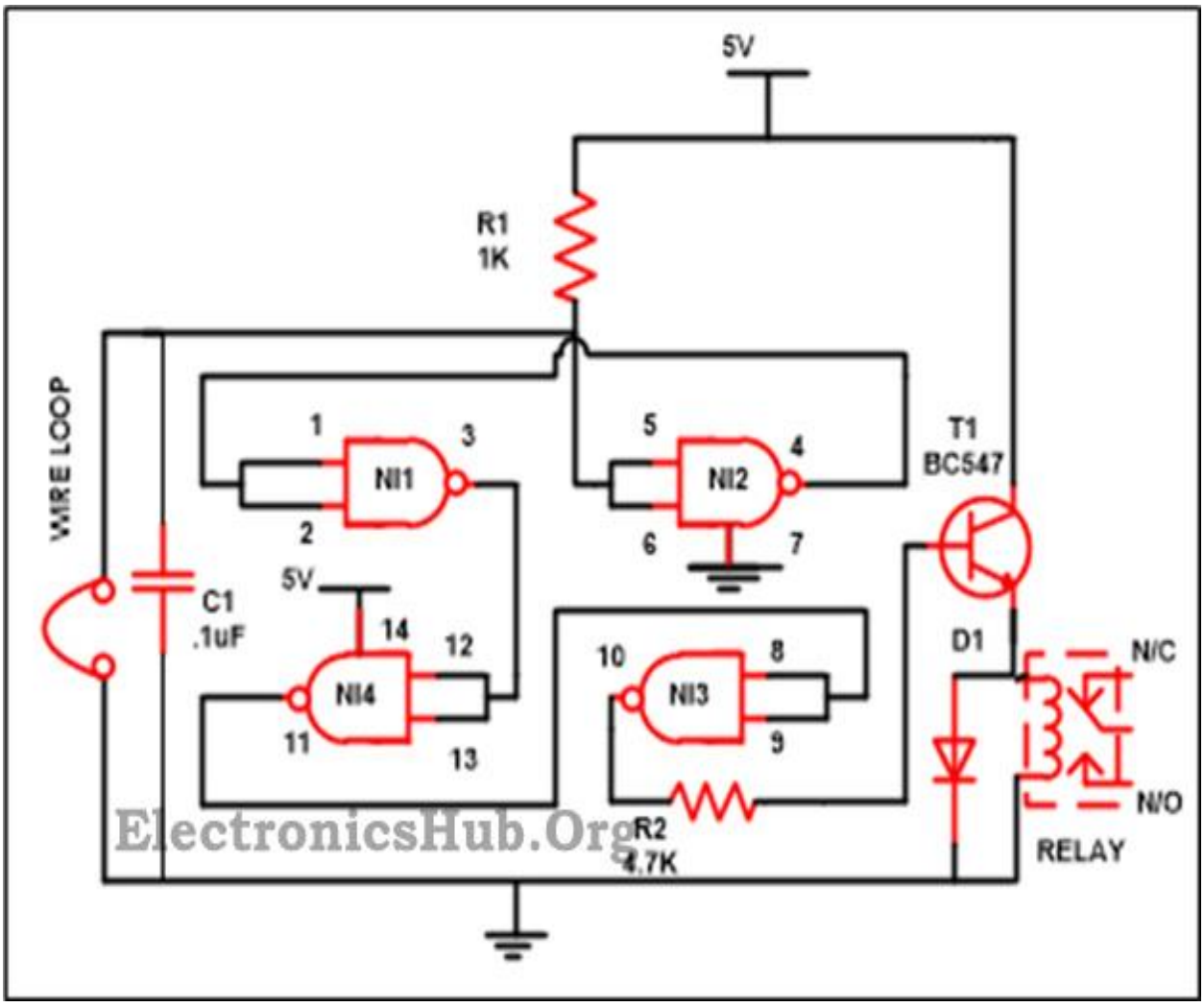
The building block of the circuit is CD4011. The CD4011 is a CMOS (Complementary Metal Oxide Semiconductor) chip used mainly. It comes in a 14-pin Dual Inline Package (DIP). There is a small notch on the chip with a corner marked P1. In a single chip, this is a set of 4 NAND gates that are independent of each other. Each gate is a three-terminal. A device with 2 terminals for input purpose and one output for input purpose.

Working voltage range of 5 V to 16 V AC. A current of about 10mA at 12 V is delivered by the IC, which can be reduced with a reduction in the power supply voltage.

These circuits are very easy to operate when we receive them; The output is based on the voltage at pin 5. At the time the power supply is attached to the circuit pin 5, the voltage is zero as the loop does not break. So at pin 4, the voltage is high, which coincides with pin 1 and pin 2 and it is in a high state. If both inputs are present you can see from the NAND Gate fact table at the higher position, then output output is lower so that at pin 3 of gate 1, we get less, which is again attached to pin 12, and 13 moves them lower, thereby shifting pin 11 higher so that pin 8 and pin 9 are higher And shifting at low voltage The transistor linked to it by the resistor does not increase its source and the alarm is not received by us. This indicates that our luggage is safe.

Now suppose someone tries to take your luggage, then the loop attached to it is broken. At that point when the loop breaks, the pin 5 and pin 6 shift work the higher and just the opposite, so that we reach pin 10 high and the transistor starts its conduction and the alarm is received by us and the alarm will not stop until the time we interact with the loop again. The value of your battery's circuit varies in the range of 6-15 V depending on the rating of the relay you are using. If you wish, you can fix the buzzer directly without using the relay. We use a relay in our circuit because if someone wants to connect the alarm directly to the AC, it works too without doing any damage. The diode is also set in our circuit because if there are any spikes in the reverse voltage, it will be short-circuited at the source and there will be no damage.

Luggage Security Alarm Circuit Diagram:


5V
R1
1K
WIRE LOOP
1
3
NI1
2
5
4
NI2
6
7
T1
BC547
C1
.1uF
5V
14
12
NI4
11
13
10
8
NI3
9
D1
N/C
N/O
RELAY
R2
4.7K
ElectronicsHub.Org

CONCLUSION AND FUTURE SCOPE

This project can be used with different dimensions. As a result this circuit is really effec tive and makes life easier. As this project covers the future, we can further track the ba ggage and therefore protect it by using GMS modules by interfacing it with Microcontrol ler.

Luggage is easy to locate by a message on the phone and can therefore protect the lugg age. Automation is the use of machines, control systems and information technologies to optimize productivity in the production and delivery of goods. The use of control system s and information technologies to reduce the need for human work in the production of goods and services. In the realm of industrialization, automation is a step beyond automa tion.

At the airport, An automated luggage loading system was introduced several years ago th at moves luggage from check-
in to airline belts, but the passenger has to carry his / her own luggage from the airport entrance to the airport check-
in. With the help of traditional luggage transport system. The traditional luggage delivery system is time consuming and laborious. At the same time it is an expensive process a nd slow. The proposed automatic system for luggage carrying system provides the necess ary features to overcome the problems mentioned above. A real-
time monitoring system has been introduced using an automated system to ensure proper movement of passengers after a smartcard. For the implementation desired automated sy stem, a six-wheel-
based robot is designed. This smartcard is sending a signal to the tower. The ultrasonic sensor is used in an automated system to perceive the signal received from this sensor fr om the tower where the triangulation is performed.

The ultrasonic sensor detects the location of the relevant smartcard and the user. Then a utomatic smart card uses the person who follows the system algorithm in order to find t he exact position of the user and follow the user. The automated system always keeps 2 mitre away from the user with the intention of avoiding conflict with the user. Before check-
in, the smartcard is in the user's pocket and across the entire airport. If there are two or more automated systems Dedicated to doing the same thing for their own smartcard hol ders, each robot sensor receives the correct signal from their own smart-
card holders and is done with the triangle method.The triangle method sends the correct signal to a particular ultrasonic sensor that is already waiting to receive the signal from its own smartcard. The ultrasonic sensor is dedicated to working with just one smartcard. Both the smart card and the ultrasonic sensor send and receive the signal, respectively. This automated system is designed in such a way as to comprehend the space of a restri cted area such as a wash-
room; The hospital and police control room are located inside the airport and away from restricted areas. In such cases there may be waiting rooms next to the rooms where use rs can Stop their robots while using those confidential areas. This automated system is al so designed so that it can detect any obstacles in front of it and easily avoid any confli cts with the obstacles. Depending on the circumstances, the automated system is capable of taking an alternate route if there are any obstacles ahead smartcard holders. The prop osed automated luggage carrying system is mainly designed to make the airport walk or the highway or main road smooth.

The Automated Luggage Security Alarm System at the airport has more coverage in al most every country in the world and in Bangladesh. Handing out luggage is always at t he heart of the airport. To reduce the main motivation of this automated luggage deliver y system is the manpower needed to deliver the goods as needed, and the efficiency in terms of reliability, handling and future flexibility.

This automated luggage carrying system is designed to reach luggage for specific smartca

rd users at a certain distance at the airport and is not touched by e-handling and is always at the heart of the airport. To reduce once the human hands are loaded into the automatic system. If the airport environment fully supports the demands of the automated system, working with this automated system in the future will be much easier and more efficient.