A

MAJOR PROJECT REPORT

ON

INVISBLE BROKEN WIRE DETECTOR

Report submitted to

Faculty of Engineering and Technology

For the award of degree of

Bachelor of Technology

In Electrical Engineering

Submitted By

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Haridwar – 249404

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CERTIFICATE

This is to certify that the Dissertation Report entitled,“ **INVISIBLE BROKEN WIRE DETECTOR**” submitted by **Brihaspathi Kumar Tripathi, Rabin Mishra, Veenraj Meena** to Faculty Of Engineering And Technology Gurukula Kangri Vishwavidhyalaya, Haridwar is a record of bonafide project work carried out by him under our supervision and guidance and is worthy of consideration for the award of the degree of bachelor of technology in Electrical Engineering of the institute.

Head of Department, EE	**Assistant Professor ,EE**	**Assistant Professor ,EE**

Date ;

CANDIDATE'S DECLARATION

I certify that the work contained in this report is original and has been done by me under the guidance of my supervisiors.The work has not been submitted to any other institute of any degree or diploma. I have followed the guidelines provided by the institute in preparing the report.I have conformed to the norms and guidelines given in the Ethical Code of Conduct of the institute.Whenever I have used materials (data, theorethical analysis,figures and text from other sources, I have given due credit to them by citing them in the text of the report and giving their details in the references.

Brihaspathi Kumar Tripathi **Rabin Mishra** **Veenraj Meena**

ACKNOWLEDGEMENT

I take this opportunity to express my deep sense of gratitude to my supervisor **Mr. Gajendra Singh Rawat**, Head of department of ELetrical Engineering, Faculty of engineering and technology gurukula kangri vishwavidhyalaya, haridwar, for his valuable guidance and cooperation through out the project work. He provided content encouragement and unceasing enthusiasm at every stage of the project work.We are grateful to our respected **Mr. Yogesh Kumar**, Assistant Professor, for guiding us while working on projectwork.

It gives me immense pleasure in acknowledging the love and encourraement showered on me by my parents. Their financial and moral support helped me to accomplish my work**.**

Place: FET, GKV, Haridwar

Brihaspati Kumar Tripathi

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Veenraj Meena

B.tech,VIII semester, IV year

PREFACE

A student gets theortical knowledge from classroom and gets practical knowledge from current technology. When these two aspect of theoretical knowledge and pratical experience together then a student is fully equipped to secure his best.

In conducting the project study in an industry , students get exposed and have knowledge of real situation in the work field and gains experience from them . the object of the IEEE paper cum project is to provide an opportunity to experience the practical aspect of Technology in any organization. It provides a chance to get the feel of the organization and its function.

The fact that broken wire analysis is the major analysis of detection of power transfer system itself shows the importance of under ground cable faults in detection of broken wires.

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ABSTRACT

In our day to day life we use various electronic appliances employing various complex components circuitry. All these modern day gadgets having there power supply wires co With a PVC jackets for the protection of both the wires as well as user from getting electric shock. But sometimes this protection also becomes a cause of problem for the user.

Whenever the inner wire breaks, the device becomes inactive and user cannot easily detect what is the reason. Video cameras, halogen flood lights, hand drillers, grinders, and cutters are powered by connecting 2- or 3-core cables to the mains plug.

Due to prolonged usage, the power cord wires are subjected to mechanical strain and stress, which can lead to internal snapping of wires at any point.

In 3-core cables, it appears almost impossible to detect a broken wire and the point of break without physically disturbing all the three wires that are concealed in a PVC jacket. So we have built a circuit which can easily detect the exact location of the broken wire and thus reduces unnecessary expenses of the user.

Chapter 1

Introduction

Our basic aim by this project is to build a circuit which acts as a device to detect the exact location of a broken point of the wire inside to the PVC jacket without physically damaging the PVC jacket thus reducing the wastage of time as well as resources.

To detect the exact location broken wire inside the PVC jacket we can employ our circuit with a hex inverter CMOS which uses its actions to control an oscillator which in return detect the presence of AC current and thus shows as the exact location till where the wire is intact and allowing passage current through it.

1.1 Industry visited:

For the industrial defined project I visited Saptarshi Process LTD.The industry is located in Rajkot.

The best part of this industry is the beautiful environment and friendly atmosphere. The people working in this industry are very genuine and down to earth.

They co-operated on my visit to this industry. And helped in every possible manner.

1.2 Analysis:

After visiting saptarshi industry and interacting with the industry person talked about IDP project and our mentor suggest us project of "Invisible Broken Wire Detector"

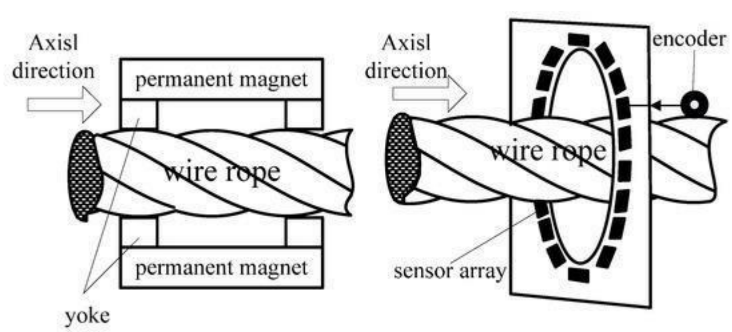
Due to prolonged usage, the power cord wires are subjected to mechanical strain and stress, which can lead to internal snapping of wires at any point.

In 3-core cables, it appears almost impossible to detect a broken wire and the point of break without physically disturbing all the three wires that are concealed in a PVC jacket. So we have built a circuit which can easily detect the exact location of the broken wire and thus reduces unnecessary expenses of the user.

Chapter 2

Literature Survey

Introduction Compact discs and the digital audio revolution The transformation of CD players and CDROMs from laboratory. BAMKO-SURPLUS . Here is the circuit diagram and working of Continuity Tester, which is used to check broken wires, undesired shorting and discontinuity of wires An invisible fence uses RF, or radio frequency, waves to detect when the transmitter on your dog’s collar passes an invisible line in your yard. Application An infrared detector that sounds a buzzer when an IR beam is broken, meaning the IR signal is lost. The man who was staying in the room next to the shooter in Las Vegas has confirmed he saw multiple gunmen involved in the Las Vegas attack The IR LED should be pointed at the IR detector over a gap of a few inches. Engage with our community Mike’s TV repair case histories. A pulsed IR signal generator is necessary,. Tutorial on interfacing PIR Sensor to Arduino.How motion sensor/motion detector based on PIR sensor be connected to Arduino with circuit diagram and program Metal Detecting Tips and Tricks, Learn the tips and tricks many metal detetor users use. invisible broken wire detector When will we see a kit/PCB’s? Your iPhone should have WiFi and Bluetooth turned On. My transmitter will indicate there **invisible broken wire detector** is a broken wire. Kidde i4618 Firex Hardwire Ionization Smoke Detector with Battery Backup – Kiddie Ka F Adaptor – Amazon.com. Submitted by many, Submit your Tips, Help out other Treasure Hunters. I can **invisible broken wire detector** switch the setting to another letter – and switch it back, and it works for a day or so before the alarm. invisible broken wire detector Here is the circuit diagram and working of Continuity Tester, which is used to check broken wires, undesired shorting and discontinuity of wires An invisible invisible broken wire detector fence uses RF, or radio frequency, waves to detect when the transmitter on your dog’s collar passes an invisible line in your yard. Recently I went into my garage to find **invisible broken wire detector** the invisible dog fence transmitter beeping. Tutorial on interfacing PIR Sensor to Arduino.How motion sensor/motion detector based on PIR sensor be connected to Arduino with circuit diagram and program. InformationWeek.com: After calling the company I was informed that this alarm meant there was a break.



This report describes the hardware system and the set of algorithms we have developed for detecting damage in cables for the Advanced Development and Process Technologies (ADAPT) Program. This program is part of the W80 Life Extension Program (LEP). The system could be generalized for application to other systems in the future. Critical cables can undergo various types of damage (e.g. short circuits, open circuits, punctures, compression) that manifest as changes in the dielectric/impedance properties of the cables. For our specific problem, only one end of the cable is accessible, and no exemplars of actual damage are available. This work addresses the detection of dielectric/impedance anomalies in transient time domain reflectometry (TDR) measurements on the cables. The approach is to interrogate the cable using time domain reflectometry (TDR) techniques, in which a known pulse is inserted into the cable, and reflections from the cable are measured. The key operating principle is that any important cable damage will manifest itself as an electrical impedance discontinuity that can be measured in the TDR response signal. Machine learning classification algorithms are effectively eliminated from consideration, because only a small number of cables is available for testing; so a sufficient sample size is not attainable. Nonetheless, a key requirement is to achieve very high probability of detection and very low probability of false alarm. The approach is to compare TDR signals from possibly damaged cables to signals or an empirical model derived from reference cables that are known to be undamaged. This requires that the TDR signals are reasonably repeatable from test to test on the same cable, and from cable to cable. Empirical studies show that the repeatability issue is the 'long pole in the tent' for damage detection, because it is has been difficult to achieve reasonable repeatability. This one factor dominated the project.

Chapter 3

Methods

The problem can be solved by the circuit to detect the exact location broken wire inside the PVC jacket we can employ our circuit with a hex inverter CMOS which uses its actions to control an oscillator which in return detect the presence of AC current and thus shows as the exact location till where the wire is intact and allowing passes current through it.

3.1 Broken Wire:

Before detecting broken faulty wire , take out any connected and find out the faulty wire first by continuity tester. Then connect 230V AC mains live wire at one end of the faulty wire, leaving the other end free. Connect neutral terminal of the mains AC to the of remaining wire sat one end. However, if any of the remaining wires is also found to be faulty, then both ends of these wires are connected to neutral. For single-wire testing, connecting neutral only to the live wire at one end is sufficient to detect the breakage Point.

3.2 To sense AC:

In this circuit, a 5cm long, thick single-strand wire is used as the test probe. Turn on switch S1 and slowly move the test probe closer to the faulty wire, beginning with the Input point of the live wire and proceeding towards its other end. LED1 starts glowing during The presence of AC voltage in faulty wire.

3.3 To indicate:

When the breakage point is reached.LED1 immediately extinguishes due to the non availability of mains AC voltage. The point where LED1 is turned off is the exact broken wire point.

3. 4 Financial feasibility:

The resources used in this project are quite feasible financially.

Components list:

- Resisters
- Diode
- Capacitor
- Switch
- IC
- LED
- Transistor
- Probe

The list of components given above shows that all the components are cheap and feasible. The company will not have any problem in using this simple project circuit.

3.5 Resource feasibility:

All the resources used in this project are easily available. The IC used in this project might be difficult to find in the market. But it is easily available.

3.6 Technical feasibility:

After i gave my idea to the industry person, the industry person told that my idea was quite feasible technically and promised to try it on his industry.

Circuit Description;-

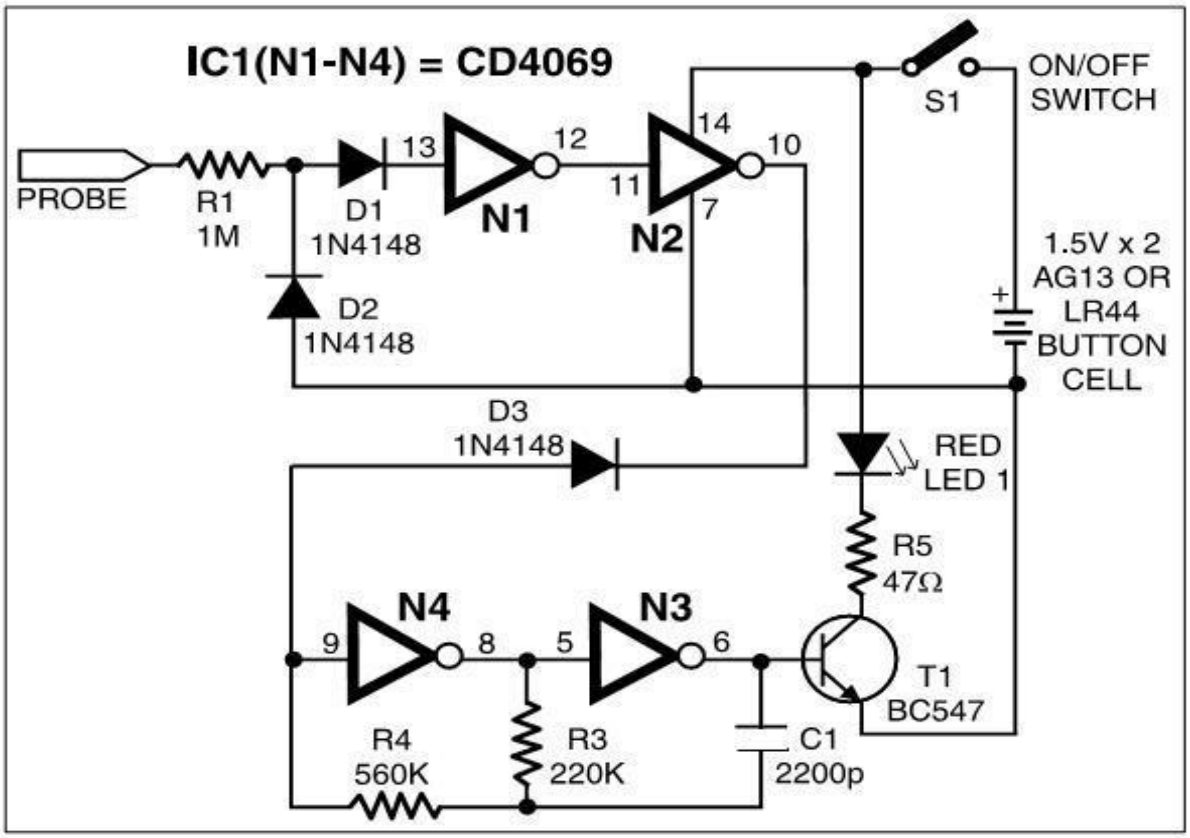


Fig.3.0 Schematic Block Diagram of Invisible Broken Wire Detector

It is built using hex inverter CMOS CD4069.Gates N3 and N4 are use as a pulse generator that oscillates around 1000 HZ in audio range.

The frequency is determining by timing component comprising register R3 and R4 and capacitor C1.

Gates N1 and N2 are used to sense the presence of 230v AC field around the live wire and buffer weak AC voltage picked from the test probe.

Voltage at output pin 10 of gate N2 can enable or inhibit the oscillator circuit.

When the test probe away from any high voltage AC field output pin of gate N2 remains low. As a result Diode D3 conduct and inhibit oscillator circuit from oscillating.

Simultaneously, the output of gate N3 at pin 6 goes' low' to cut off transistor T1.

As a result, LED1 goes off. When the test probe move closer to 230v AC, 50HZ mains live wire during every positive half cycle, output pin of gate N2 goes high.

Thus during every positive half cycle of the mains frequency, the oscillator circuit allows to oscillates at around 1KHZ, making red LED1 to blink.

To detect the breakage point, turn on switch S1 and slowly move the test probe closer to the faulty wire, beginning with the input point of the live wire and proceeding towards its other end.

LED1 start glowing during the presence of AC voltage in faulty wire.

The point where LED1 is turned off is the exact broken wire point.

COMPONENT DETAILS

IC CD4069 :

General Description :

The CD4069UB consists of six inverter circuits and is manufactured using complementary MOS (CMOS) to achieve wide power supply operating range, low power consumption ,high noise immunity, and symmetric controlled rise and fall times. .

This device is intended for all general purpose inverter applications where the special characteristics of theMM74C901, MM74C907, and CD4049A Hex Inverter/Buffer are not required. In those applications requiring larger noise immunity the MM74C14 or MM74C914 Hex Schmitt Trigger is suggested.

All inputs are protected from damage due to static discharge by
diode clamps to VDD and VSS.

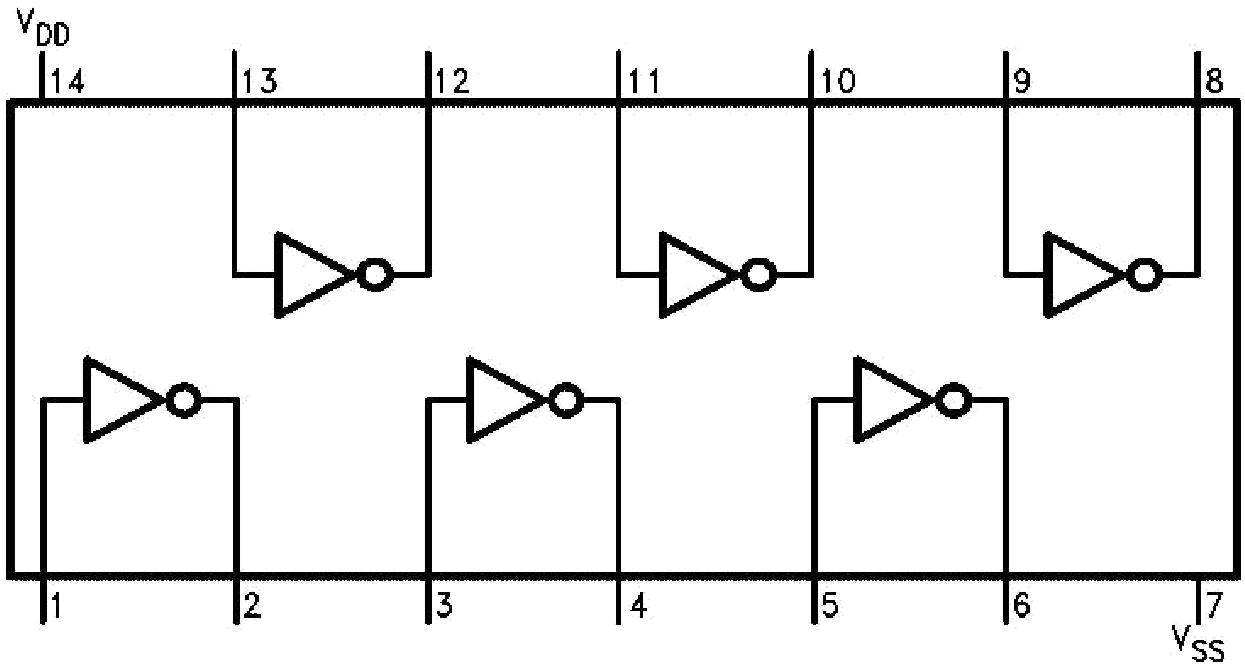


FIG.3.1 CONNECTION DIAGRAM

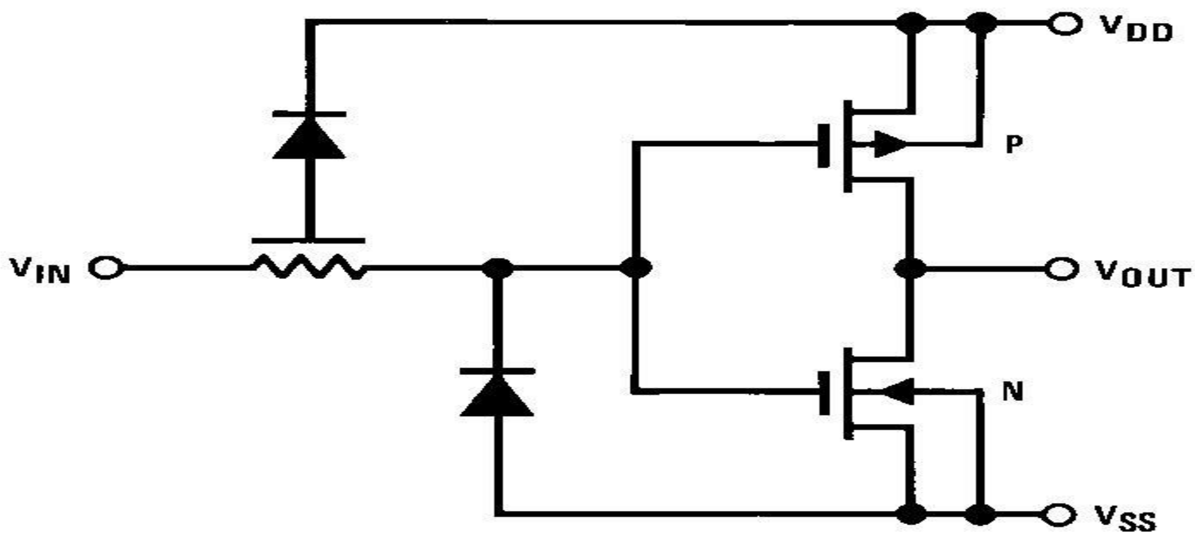


FIG.3.2 SCHEMMATIC DIAGRAM

Symbol	Parameter	Condition	-55^0C		$+25^0C$			$+125^0C$		Units
			MIN	MAX	MIN	TYP	MAX	MIN	MAX	
I_{dd}	Quicent Device Current	VDD = 5V VIN = VDD or VSS VDD = 10V VIN = VDD or VSS VDD = 15V VIN = VDD or VSS		0.25 0.5 1.0			0.25 0.5 1.5		7.5 15 30	µA
V_{ol}	Low Level Output Voltage	|IO| < 1µA VDD = 5V VDD = 10V VDD = 15V		0.05 0.05 0.05		0 0 0	0.05 0.05 0.05		0.05 0.05 0.05	V
V_{oh}	High Level Output Voltage	|IO| < 1 µA VDD = 5V VDD = 10V VDD = 15V	4.9 9.9 14		4.9 9.9 14	5 10 15			4.9 9.9 14	V
V_{il}	Low Level Input Voltage	|IO| < 1 µA VDD = 5V, VO = 4.5V VDD = 10V, VO = 9V VDD = 15V, VO = 13.5V		1.0 2.0 3.0			1.0 2.0 3.0		1.0 2.0 3.0	V
V_{ih}	High Level Input Voltage	|IO| < 1 µA VDD = 5V, VO = 0.5V VDD = 10V, VO = 1V VDD = 15V, VO = 1.5V	4.0 8.0 12		4.0 8.0 12			4.0 8.0 12		V
I_{ol}	Low Level Output Current	VDD = 5V VO = 0.4V VDD = 10V VO = 0.5V VDD = 15V VO = 1.5V	0.6 1.6 4.2		0.5 1.3 3.4	0.8 2.5 8.8		0.3 0.9 2.4		mA
I_{oh}	High Level Output	VDD = 5V, VO = 4.6V VDD = 10V, VO = 9.5V VDD = 15V,								mA

Current	VO = 13.5V									

3.1 D.C electric characteristic

3.2 Absolute Maximum Ratings :

DC Supply Voltage (VDD) 0.5V to +18 VDC Input

Voltage (VIN) 0.5V to VDD +0.5 VDC Storage

Temperature Range (TS) 65°C to +150°C Power

Dissipation (PD)

Dual-In-Line 700 mw

Small Outline 500 mw lead Temperature (TL) (Soldering, 10 seconds) 260°C.

3.3 Recommended Operating Conditions :

DC Supply Voltage (VDD) 3V to 15VDC

Input Voltage (VIN) 0V to VDD VDC

Operating Temperature Range (TA) 55°C to +125°C

Note 1: "Absolute Maximum Ratings" are those values beyond which the safety of the device cannot be guaranteed. They are not meant to imply that the devices should be operated at these limits. The table of "Recommended Operating Conditions and Electrical Characteristics table provide conditions for actual device operation.

Note 2: VSS = 0V unless otherwise specified

Note 3: VSS = 0V unless otherwise specified.

Note 4: IOH and IOL are tested one output at a time.

AC Electrical Characteristics :

TA = 25°C, CL = 50 pF, RL = 200 k∧, tr and tf δ 20 ns, unless otherwise specified

Symbol	Parameter	Condition	Min	Typ	Max	Unit
t_{PHL} or t_{PLH}	Propagation Delay Time from Input to Output	VDD = 5V	_	50	90	Ns
tTHL or tTLH	Transition Time	VDD = 5V VDD = 10V ns VDD = 15V	_	80 50	150 100	Ns
CIN	Average Input Capacitance	Any Gate	_	6	15	pF
CPD	Power Dissipation Capacitance	Any Gate	_	_	12	pF

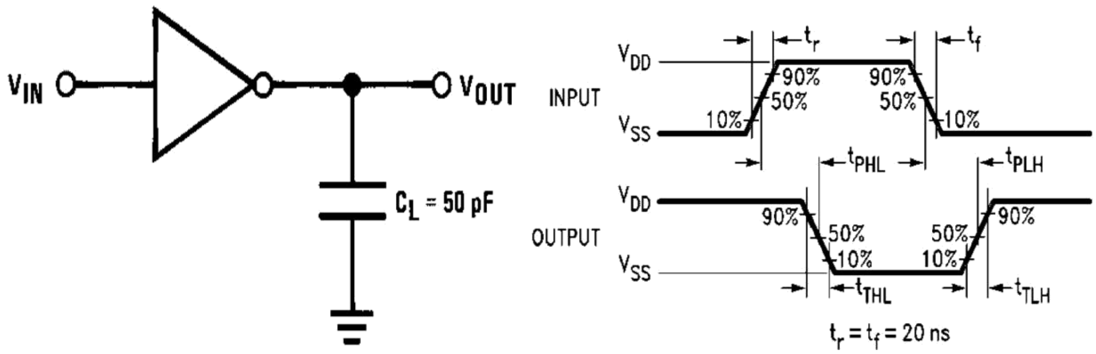


FIG 3.4AC Test Circuits and Switching Time Waveforms

<u>3.2 RESITOR :</u>

FIG.3.5 RESISTOR

A **linear resistor** is a linear, passive two-terminal electrical component that implements electrical resistance as a circuit element. The current through a resistor is in direct proportion to the voltage across the resistor's terminals. Thus, the ratio of the voltage applied across a resistor's terminals to the intensity of current through the circuit is called resistance. This relation is represented by Ohm's law:

Resistors are common elements of electrical networks and electronic circuits and are ubiquitous in most electronic equipment. Practical resistors can be made of various compounds and films, as well as resistance wire (wire made of a high-resistivity alloy, such as nickel-chrome). Resistors are also implemented within integrated circuits, particularly analog devices, and can also be integrated into hybrid and printed circuits.

The electrical functionality of a resistor is specified by its resistance: common commercial resistors are manufactured over a range of more than nine orders of magnitude.

When specifying that resistance in an electronic design, the required precision of the resistance may require attention to the manufacturing tolerance of the chosen resistor, according to its specific application. The temperature coefficient of the resistance may also be of concern in some precision applications. Practical resistors are also specified as having a maximum power rating which must exceed the anticipated power dissipation of that resistor in a particular circuit this is mainly of concern in power electronics applications. Resistors with higher power ratings are physically larger and may require heat sinks. In a high-voltage circuit, attention must sometimes be paid to the rated maximum working voltage of the resistor.

Practical resistors have a series inductance and a small parallel capacitance; these specifications can be important in high-frequency applications. In a low-noise amplifier or pre-amp, the noise characteristics of a resistor may be an issue. The unwanted inductance, excess noise, and temperature coefficient are mainly dependent on the technology used in manufacturing the resistor. They are not normally specified individually for a particular family of resistors manufactured using a particular technology. A family of discrete resistors is also characterized according to its form factor, that is, the size of the device and the position of its leads (or terminals) which is relevant in the practical manufacturing of circuits using them.

3.3 TRANSISTOR :

BC547

NPN general purpose transistor

FEATURES

- Low current (max. 100 mA)
- Low voltage (max. 65 V).

APPLICATIONS

- General purpose switching and amplification.

DESCRIPTION

NPN transistor in a TO-92; SOT54 plastic package.PNP complements: BC556 and BC557.

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
VCBO	collector-base voltage BC546 BC547	open emitter	_ _	80 50	V V
VCEO	collector-emitter Voltage BC546 BC547	open base	_ _	65 45	V V
VEBO	emitter-base voltage BC546 BC547	open collector	_ _	6 6	V V
IC	collector current (DC)	_	_	100	mA
ICM	peak collector current	_	_	200	mA
IBM	peak base current	_	_	200	mA
Ptot	total power dissipation	Tamb ≤ 25 °C;	_	500	mW
Tstg	storage temperature	_	–65	+150	°C
Tj	junction temperature	_	_	150	°C
Tamb	operating ambient temperature	_	–65	+150	°C

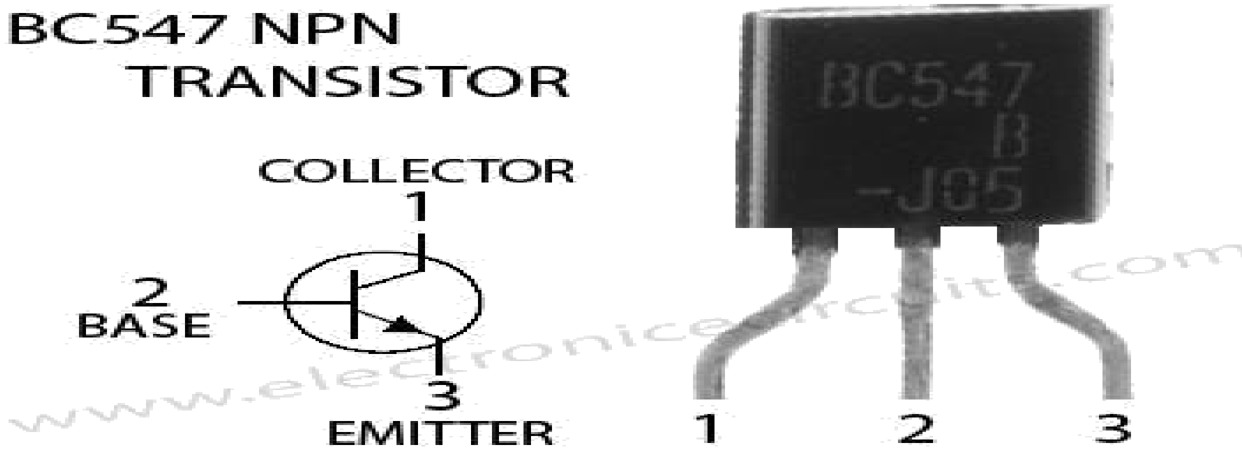


FIG. 3.3 BC547 NPN TRANSISTOR

3.3.1 LIMITING VALUES :

In accordance with the Absolute Maximum Rating System

3.4 Diode :

3.4.1 1N4148 :

FEATURES :

•Hermetically sealed leaded glass SOD27 (DO-35) package
•High switching speed: max. 4 ns •General application

•Continuous reverse voltage: max. 100 V
•Repetitive peak reverse voltage: max. 100 V
•Repetitive peak forward current: max. 450 mA.

APPLICATIONS :

- High-speed switching.

DESCRIPTION :

The 1N4148 and 1N4448 are high-speed switching diodes fabricated in planar technology, and encapsulated in hermetically sealed leaded glass SOD27 (DO-35) packages.

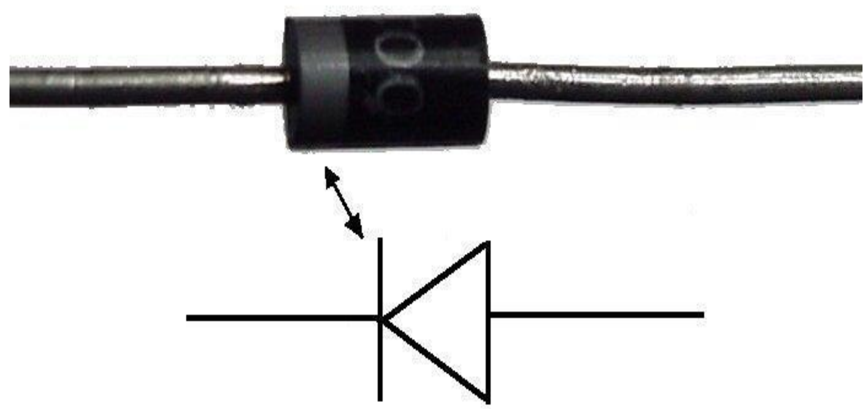


FIG. 3.6 Diode

3.4.2 ELECTRICAL CHARACTERISTICS

Tj = 25 °C unless otherwise specified

Symbol	Parameter	Condition	Min.	Max.	Unit
Vr	Forward voltage 1N4148 1N4448	$I_{f=10mA}$ $I_{f=5mA}$ $I_{f=100mA}$	- 0.62 -	1 0.72 1	V V V
I_R	Reverese current	V_R=20V		25	nA
		V_R=20V,T_j=150 ^oC	-	50	µA
I_R	Reverse current:1N4448	V_R=20 V T_j=100^{o}C	-	3	µA
C_d	Diode capacitance	F=1M$_{HZ}$,Vr=0V	-	4	pF
t_{rr}	Reverese recovery Time	When switched from I_f=10mA to I_r=60mA;R_L=100Ω measured at I_R = 1 mA;	-	4	Ns
V_{fr}	Forward recovery Voltage	When switched From I_f=50mA;t_r=20ns	-	2.5	V

3.7 LED :-

Fig. 3.7 LED

A **light-emitting diode** (**LED**) is a semiconductor light source. LEDs are used as indicator lamps in many devices and are increasingly used for other lighting. Introduced as a practical electronic component in 1962, early LEDs emitted low-intensity red light, but modern versions are available across the visible, ultraviolet, and infrared wavelengths, with very high brightness.

When a light-emitting diode is forward-biased (switched on), electrons are able to recombine with electron holes within the device, releasing energy in the form of photons. This effect is called electroluminescence and the color of the light (corresponding to the energy of the photon) is determined by the energy gap of the semiconductor. LEDs are often small in area (less than 1 mm^2), and integrated optical components may be used to shape its radiation pattern. LEDs present many advantages over incandescent light sources including lower energy consumption, longer lifetime, improved robustness, smaller size, and faster switching. LEDs powerful enough for room lighting are relatively expensive and require more precise current and heat management than compact fluorescent lamp sources of comparable output.

Light-emitting diodes are used in applications as diverse as replacements for aviation lighting, automotive lighting (in particular brake lamps, turn signals, and indicators) as well as in traffic signals. LEDs have allowed new text, video displays, and sensors to be developed, while their high switching rates are also useful in advanced communications technology. Infrared LEDs are also used in the remote control units of many commercial products including televisions, DVD players, and other domestic appliances.

PRACTICAL USE :-

The first commercial LEDs were commonly used as replacements for incandescent and neon indicator lamps, and in seven-segment displays, first in expensive equipment such as laboratory and electronics test equipment, then later in such appliances as TVs, radios, telephones, calculators, and even watches (see list of signal uses).

These red LEDs were bright enough only for use as indicators, as the light output was not enough to illuminate an area. Readouts in calculators were so small that plastic lenses were built over each digit to make them legible. Later, other colors grew widely available and also appeared in appliances and equipment. As LED materials technology grew more advanced, light output rose, while maintaining efficiency and reliability at acceptable levels. The invention and development of the high-power white-light LED to use for illumination, which is fast replacing incandescent and fluorescent lighting. (See list of illumination applications). Most LEDs were made in the very common 5 mm T1¾ and 3 mm T1 packages, but with rising power output, it has grown increasingly necessary to shed excess heat to maintain reliability, so more complex packages have been adapted for efficient heat dissipation. Packages for state-of-the-art high-power LEDs bear little resemblance to early .

3.8 CAPACITOR :

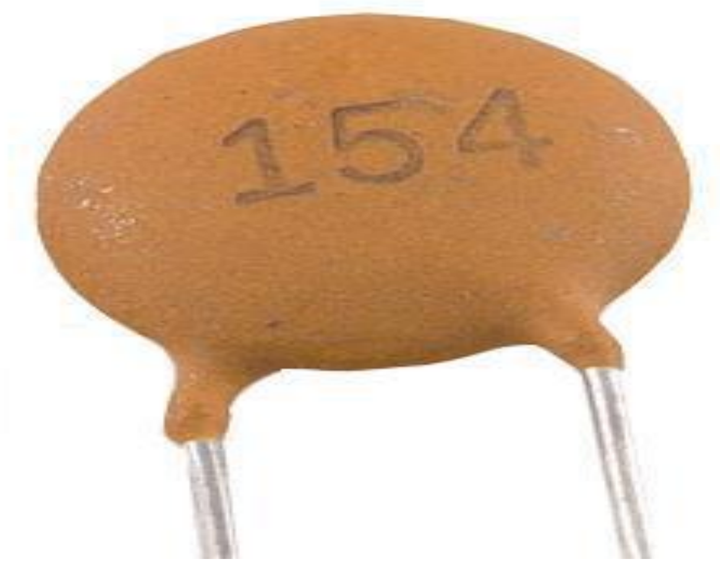


Fig.3.8 Capacitor

A **capacitor** (formerly known as **condenser**) is a passive two-terminal electrical component used to store energy in an electric field. The forms of practical capacitors vary widely, but all contain at least two electrical conductors separated by a dielectric (insulator); for example, one common construction consists of metal foils separated by a thin layer of insulating film. Capacitors are widely used as parts of electrical circuits in many common electrical devices.

When there is a potential difference (voltage) across the conductors, a static electric field develops across the dielectric, causing positive charge to collect on one plate and negative charge on the other plate. Energy is stored in the electrostatic field. An ideal capacitor is characterized by a single constant value, capacitance, measured in farads. This is the ratio of the electric charge on each conductor to the potential difference between them.

The capacitance is greatest when there is a narrow separation between large areas of conductor; hence capacitor conductors are often called "plates," referring to an early means of construction. In practice, the dielectric between the plates passes a small amount of leakage current and also has an electric field strength limit, resulting in a breakdown voltage, while the conductors and leads introduce an undesired inductance and resistance. Capacitors are widely used in electronic circuits for blocking direct current while allowing alternating current to pass, in filter networks, for smoothing the output of power supplies, in the resonant circuits that tune radios to particular frequencies and for many other purposes.

The simplest capacitor consists of two parallel conductive plates separated by a dielectric with permittivity ε (such as air). The model may also be used to make qualitative predictions for other device geometries. The plates are considered to extend uniformly over an area A and a charge density $\pm\rho = \pm Q/A$ exists on their surface. Assuming that the width of the plates is much greater than their separation d, the electric field near the centre of the device will be uniform with the magnitude $E = \rho/\varepsilon$. The voltage is defined as the line integral of the electric field between the plates. Solving this for $C = Q/V$ reveals that capacitance increases with area and decreases with separation

$$C = \frac{\varepsilon A}{d}$$

The capacitance is therefore greatest in devices made from materials with a high permittivity, large plate area, and small distance between plates.

We see that the maximum energy is a function of dielectric volume, permittivity, and dielectric strength per distance. So increasing the plate area while decreasing the separation between the plates while maintaining the same volume has no change on the amount of energy the capacitor can store. Care must be taken when increasing the plate separation so that the above assumption of the distance between plates being much smaller than the area of the plates is still valid for these equations to be accurate.

Chapter 4

SOFTWARE DESIGN:-

4.1 Software design :

I found my dew sensor circuit and heater circuit from the internet as I said in the above chapter.

I have made my complete project on a special purpose PCB.

I prepared the layout of both of these circuits using dip trace software.

I learned dip trace software in my college. Then I installed the software from the internet and started working on it.

Given below is he detailed description on dip trace software.

4.1.1 Dip trace

Dip Trace is EDA software for creating schematic diagrams and printed circuit boards. The first version of Dip Trace was released in August, 2004. The latest version as of September 2011 is Dip Trace version 2.2. Interface has been translated to many languages and new language can be added by user. There are tutorials in English, Czech, Russian and Turkish. Starting from February 2011 Dip Trace is used as project publishing standard by Parallax.

Modules

- Schematic Design Editor
- PCB Layout Editor
- Component Editor
- Pattern Editor
- Shape-Based Auto router
- 3D PCB Preview

Freeware and Non-Profit versions

A version of Dip Trace that is freely available with all the functionality of the full package except it is limited to 300 pins and 2 signal layers.

Other sources

- Dip Trace at Seattle Robotics Society meeting
- Dip Trace at Nuts and Volts – October 2006
- Review at C Net .
- Some hobby and educational groups such as the PICAXE forum members have developed libraries specific to the PICAXE range of microcontroller as produced by Revolution Education including many of the frequently used associated integrated circuits. PICAXE related libraries can be found here:
    - DIP TRACE Libraries by and for PICAXE microcontroller users

External links

- Dip Trace official Website in English
- Dip Trace Website in Italian
- Dip Trace Website in Turkish
- Novarm Ltd. Official Website in English

ADVANTAGES & LIMITATION:-

Advantage :

- Reduce the wastage of wire
- Circuit cost is low
- This circuit indicate exact location of the broken wire
- It is easy to febricate the circuit
- Circuit operates only on DC 3V

Limitation :

- Circuit is not able to detect the fiber optics cable
- This circuit is not indicate which wire is faulty

Daily Schedule

MONTH	WORK DONE
July	Made our visit to Saptarshi industry.Industry person give us project of broken wire detector
Auguest	Found the information about circuit.We can find block diagram.
September	prepared layout, started mounting and febricated device
October	Successfully completed the model and started preparing report
November	Completed the report and prepared the presentation

RESULT

Thus by using this project we can able to know the exact location of the broken wires. This project can also be used in other components which may be harmed due to access.

It would not only able in reducing wastage of time but resources also. Thus using just a hex inverter and few resistors we are able to construct a device which can easily detect a faulty broken wire and thus save the extra cost of a user which is incurred on replacing the faulty wire and not repairing it which is otherwise too difficult.

This project is useful in industry which makes the different wires.The febrication of this circuit is very easy and peoples are able to prepare its own circuit easily.

Conclusion

- We can use an inverter in between the LED and the oscillator which will then turn on the LED only when the broken point is detected and keeping it off when the wire is not broken.

- By making this change we can make our detector more user friendly which now directly shows the broken point.

REFERANCE

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1. 1. 1 A MINOR PROJECT REPORT ON LIVE WIRE DETECTOR For the Degree of BACHELOR OF TECHNOLOGY In Electronics and Communication Engineering By Rajeev Chandra Gupta -1116531108 Sarvendra Mishra-1116531121 Yadavendra yadav-1116531147 Rahul Tiwari-1116531107 Submitted to Mr. Sanjiv Mishra Assistant Professor Kanpur Institute of Technology, KANPUR
2. 2. 2 KANPUR INSTITUTE OF TECHNOLOGY KANPUR CERTIFICATE This is to certified that the Project entitled "LIVE WIRE DETECTOR", which is being submitted by RAJEEV CHANDRA GUPTA, SARVENDRA MISHRA, YADAVENDRA YADAV and RAHUL TIWARI in partial fulfillment for the award of Bachelor of Technology in Electronics and Communication Engineering, U.P. Technical University, Lucknow is a record of the candidate own work carried own work carried out by him/her under my supervision and guidance. The matter embodied in this thesis is original and has not been submitted for the award of any other degree. Date: Head of Department: Mr. Vaibhav Purwar
3. 3. 3 ACKNOWLEDGEMENT It gives us a great sense of pleasure to present the B. Tech minor project undertaken during B. Tech Final year. We owe special debt to Mr. Sanjiv Mishra Assistant Professor of Electronics and Communication Engineering, Kanpur Institute of Technology, Kanpur for his constant support and guidance throughout the course of our work, His sincerity, thoroughness and perseverance have been a constant source of inspiration for us. It is only his cognizant efforts that are endeavor have seen light of the day. We also do not like to miss the opportunity to acknowledge the contribution of all faculty members of department for their kind assistance and cooperation during the development of our minor project. Last but not the least, we acknowledge our friends for their contribution in completion of the project. Place: Kanpur Signature of Students: Date: RAJEEV CHANDRA GUPTA SARVENDRA MISHRA YADAVENDRA YADAV RAHUL TIWARI