

IoT Based Underground Fault Cable Detection Using Wireless Technology

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Abstract:- The problem of power line structure, a model of underground power line fault power line area using microcontroller is proposed. At the point where a similar obstacle occurs, as the current changes, depending on the duration of the power connection failure, the drop will be different. The resistor arrangement is used to address the power jumper and provide DC voltage. On the side of the power connector. When a fault occurs, the opposite terminal is identified by adjusting the voltage using a simple voltage converter. The microcontroller performs the necessary calculations. Therefore, the missing gap is displayed on the LCD screen. You can receive a warning message about registering a universal number.

I. INTRODUCTION

INTERNET OF THINGS (IOT) The domain Internet of Things (IoT) is a field that concentrates on developing systems of interrelated components or systems such as computing devices, some mechanical machines, digital components, non-living entity or living beings. Each component that related to the system is issued a Unique Identifiers (UIDs). They are also capable of transferring data over a network from source to the destination. This can also be accomplished without the need of human-tohuman interaction. Even the human-to-computer interaction is also not required. This field has evolved and developed along with the up gradation of hardware components, software programs, sensors, communication devices, machine learning, real-time data analytics and many other such multiple technologies.

IOT SERVICES AND APPLICATIONS • Consumer applications IOT is used for consumer applications such as Smart Home and Elder Care. • Commercial application IOT is used for commercial applications such as Medical care and Health care, Transportation, V2X communications, Buildings and Home Automation • Industrial applications IOT is used for Industrial applications such as Manufacturing and Agriculture • Infrastructure applications IOT is used for Infrastructure applications such as Metropolitan scale deployments, Energy management, Environmental monitoring • Military Applications IOT is used for Military applications such as Internet of Battlefield Things, Ocean of Thing.

II. LITERATURE REVIEW

Title: Detection of fault with Sectionalizing

Solution 1: Sectionalizing is a technique which lessens power link unwavering quality. This relies upon genuinely cutting and grafting the force link. The force link is isolated in the progressive more modest segments where it estimates highvoltage protection opposition (IR) analyzer to empower restricted down look for a force link issue. Ordinarily, this interaction incorporates rehashed unearthing of force link. Today's world is worried regarding security due to increment in crime percentage in the general public. This has brought about an expansion in the significance of a productive observation framework. Reconnaissance can be characterized as checking of conduct exercises of the individuals or assets. This procedure can incorporate perception from a separation by the methods for hardware types of gear and different devices. The individuals are not any more typical with the military and other security advances. Today observation system are present everywhere.

Title: Thumping

Solution 2: High voltage is provided through the broken force link, it brings about high current are which makes an uproarious commotion which is sufficient to hear over the ground. This strategy takes out the downside of the sectionalizing technique. Pounding technique wipes out the methodology utilized in sectionalizing i.e., cutting and grafting. Pounding needs 10,000 amps of current in voltage which is pretty much as high as 25KV to make commotion sufficiently discernible to hear over the ground level. This significant level current of 25KV may cause debasement of the force link protection. The harm can be constrained by passing least expected ability to lead the pounding test

Title: Time-Domain Reflectometer

Solution 3: Time space reflectometer (TDR), it is a device which uses time area reflectometer to discover blames & correct and discover which kind of issue is available the metal-based force link. TDR communicates a low-energy signal through the metallic force link, which causes no protection debasement. Hypothetically amazing force link returns signal inside guaranteed or known time and in a recognizable. Impedance varieties "this present reality" power link modify both profile and time, which is addressed by the TDR screen or printout utilizing designs. The downside of TDR is it won't consider pinpoint issues

Title: Bend Reflection Method

Solution 4: Curve reflection strategy is known as High voltage radar method which conquers the 200 ohms limit of low voltage radar. Circular segment reflection channel and flood generator is vital what's more with Time Domain Reflectometer. A curve is made across the shunt flow utilizing flood generator. This makes a flashing short out that the Time-Domain Reflectometer can show as descending going reflection. This is the exact technique and most effortless pre area discovery strategy. Channel is utilized ensure the Time Domain Reflectometer by the flood produced high voltage beat and furthermore courses the down the low-voltage beats of the force link. Time Domain Reflectometer utilizes Arc reflection strategy to show "previously" and "after" follows or marks of force link. There are two after follows given underneath: - "previously" Trace: - This shows the low-voltage radar signature which shows all force link areas however the descending impression of the opposition shunt power link shortcoming isn't shown. "after" Trace: - This follow shows the high-voltage signature which incorporates the link flow area despite the fact that there might be opposition higher than the 200 Ohms. Here, the follow is digitized, put away and showed on the LCD show screen and the cursors are situated to peruse the distance between the shortcoming power link to the high opposition link flaw. The shortcoming in the force link is recognized and showed concerning the connection to other force link found or milestones like grafts, taps and transformers and no translation is essential

Title: Blavier's Test

Solution 5: In the event that the ground shortcoming happens in the force link, and in case there could be no other force link, during this time the Blavier's Test can be directed to discover the flaw in the force link. Ground shortcoming of the single force link can be found utilizing Blavier's test. Without the utilization of sound force link to discover issue in the force link, then, at that point the separation starting with one end then onto the next end is called Blavier's test. Sectionalizing is a procedure which reduces power cable reliability. It depends on the physical cutting and splicing of the power cord. The power cord is divided into continuous smaller parts, and a high-voltage insulation resistance (IR) tester measures these parts to provide more accurate power cord troubleshooting. Power cable

III. INTRODUCTION TO PROJECT

This project introduces a military fault whose working is based on IOT technology. This fault is developed for the purpose of security. This is a replacement for the deployed forces in the borders. This system is embedded with an infrared sensor. This sensor senses any intruders or trespassers across the protected areas and sends a signal to activate the alarm. Following this the system will also trigger the gun to shoot the intruder when he crosses the specified limits. The system is also installed with a camera featured with live recording. This camera will record live video of the happenings in the areas and then transmit the equivalent towards the advanced phone which acts as the collector. At the same time, it will also start giving alert and

the information will move from the transmitter and receiver to the cell phone.

IV. EXISTING & PROPOSED SYSTEM

EXISTING SYSTEM

Power lines were laid overhead many years ago and are now connected to underground power lines. This is better than the previous strategy because underground power lines are not affected by severe weather conditions such as storms., Snowing or heavy rain. Just like pollution. However, when the power connection is insufficient, it is difficult to find the fault. In these areas, we will move forward to solve specific areas of the problem. As the world is now digitized, the task of allocating emission zones is planned with the help of computers. In many metropolitan areas, building underground power lines is a more normal and consistent approach. Although the cause of the problem is unknown, in general, the fixed interaction with this force link recognition is problematic because the specific area of the force link defect is unknown.

Disadvantages of Existing System

- The expenditure bared by the Government is very high to find the fault in machines.
- Life Losses occurs often which cannot be regenerated or repaired.
- Modifications / Up gradations cannot be made or implemented.
- Inconsistency
- Current is redirected from the proposed way.

PROPOSED SYSTEM

The proposed structure is a structure that uses the Internet of Things to detect defects in underground power lines. The basic rule of this structure is Ohm's law. The box of WIFI module, single-chip microcomputer and real-time clock fault identification box is shown in the figure. Power is provided through transformers, rectifiers and step-down hazard regulators. The bond of power brings greatness. The voltage drops. The vision of the system that is being described is to solve the problem such as the life losses of the deployed forces that occur and also to build a machine that traces the intruders and also records and transmits the movements.

Advantages of Proposed System

- The investment is also less and affordable compared to the existing system. One time investment can serve for many years.
- Life Losses can be prevented since they are machines and can be repaired if damaged.
- The advantage of exact area of issue are quick fix to restore to the force framework.
- Modifications & Up gradations can be made by implementing according to the latest technologies.
- The accuracy, performance & efficiency of the faults are very high.
- Improved public safety and security.

V. CONCLUSION

A detailed explanation regarding introduction to the project & system development is mentioned in the report such as Overview of Project, Défense expenditure & losses, risks to deployed forces, the solution for the problem and

military applications of IOT. This report also contains the detailed explanation about the disadvantages and advantages of the existing system & proposed system respectively. This report also contains the list for special features that the fault possesses. This report contains the details of the requirements specifications such as components used, hardware requirements & software requirements. The technical specification such as wireless communication, V/A WL colour security camera & infrared are also explained. The details about the applications of IOT, The Major areas of applications of IOT are also mentioned.

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