

A REAL TIME LANDSLIDE DETECTION WITH ACKNOWLEDGEMENT

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Abstract: In this paper, Landslide detection is used to describe the Down slope faction of soil, rock & unrefined Materials under the force of gravity .It can be triggered by steady processes such as Weathering or by external mechanism. We need to prevent the loss of life & spoil to communication routes, Human settlement, Agricultural fields & Forest land etc. We will discuss the techniques which includes circuits for Railway Track cutting, Fogg recognition, Heavy Rainfall & to provide alert system. This system uses a wireless sensor network which is Digital sensor network. This sensor nodes are one of the progressive technologies, it provides high sensitivity, large coverage area, accurate processing & Transmission of critical data in Run time with high resolution. The sensor module detects the vibration from field & sends data to monitoring station through RFID module. We have implement this work by using competent microcontroller AT89s52.

Keywords: Landslide, Digital Sensor, RF ID, Microcontroller AT89s52.

I. INTRODUCTION

In this paper, We introduces the landslide includes all varieties of collection movement of Hill slope and it can be defined as Downward and Outword progress of slope forming materials including rocks, soils.This combination of all materials allow surface of separation by falling ,sliding ,spreading and flowing either quickly or slowly from one to another place . The types of Landslide vary with respect to the:

1] Rate of movement:-

This ranges from very slow creep (millimeters/year) to extremely fast (meters/second)

2] Type of materials:-

Landslides are collected of bedrock, unconsolidated residue and/or organic debris.

3] Nature of movement:-

Landslide triggered by rainfall occurs most mountains place. Some of the earthquake occurs unexpectedly and travel many kilometers at high rate [5].

Environmental disasters are largely impulsive and occur within very short spans of time. Techniques has to be developed to capture relevant signals with minimum monitoring delay [2] .The mud slide occurs due to under heavy rainfall condition ,rain infiltration on the slope causes instability,a reduction in factor of safety ,transient pressure response etc.

The real time examples are

1] Landslide was occur at Malin village, pune on 30 july 2014,It caused by Heavy rainfall.

2] Maharashtra Train accident (Konkan railway track cut) at 5 may 2014.

Used in ghat areas to avoid accident & damage .The corner arrows will be on if fogg recognition. When track cut detected then it will sends data to main station and to prevent the human life& property .We can't bring to a close natural causes

but we can be alert before they occur for alerting people for landslide [1]. We aim to use WSN and RFID techniques in earthquake for estimating the possibility incidence of landslide. Our main goal of this effort is to detect rainfall, railway track cut, falling fogg in ghat areas induced landslide which occur commonly in india. We have use RFID technique and use microcontroller AT89s52,ADC ,LCD ,Digital sensor, relays, DC motor.

II. BACKGROUND WORK

1) The wireless sensor network for landslide detection:

Wireless sensor network is one of major technology can be used for real time monitoring, operation and data retrieval or collection from geophysical sensor,design,development of data collection and aggregation algorithm needed for network and a system uses A heterogeneous network compose wireless sensors nodes ,Wi-Fi and satellite terminal for efficient delivery of real time data to data management center[2].

2) Satellite remote sensing for detail landslide inventories using change detection and image fusion:

Satellite images can be use for detailed landslide inventories due to high contrast between landslide and its background area .Remote area are survey by multi temporal detection using spot and detail mapping and interpretation using IKONOS in areas of immediate interest for development [8].

3) The research on Wireless sensor network (WSN) for landslide monitoring:

It discusses design, implementation of key function such as transceiver, MCU unit, data acquisition module and background monitoring unit. Show bit error rate. Wireless sensor network that affect the future life. It provides new way to obtain and process information the low cost online monitoring can be implement by excellent characters of WSN. AT89c52 and data acquisition module is used and background monitoring unit (embedded system) in it [9].

III. METHODOLOGY

The block diagram proposed in figure consist of 2 Stations in landslide detection:

1) Site station

2) Main station (help station)

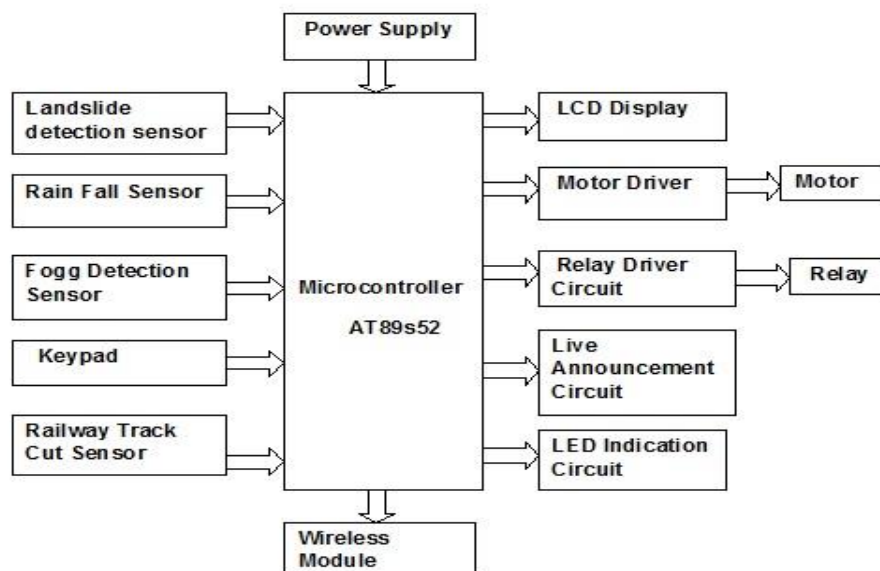


Fig 1: Block diagram of site station

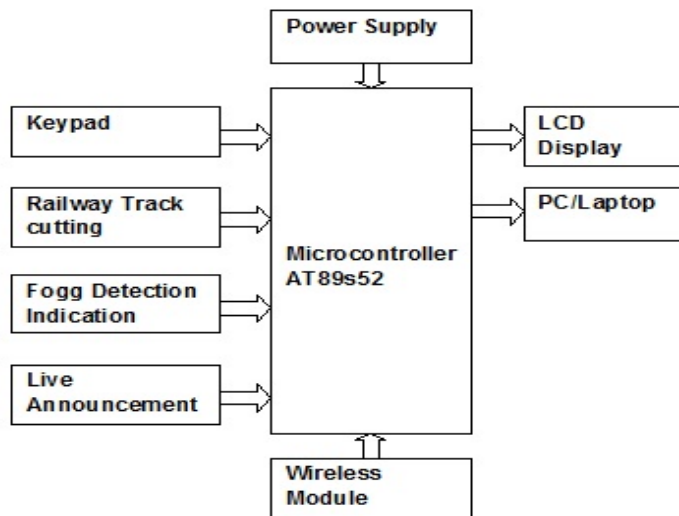


Fig 2: Block diagram of main station

i) Vibration sensor:

This sensor uses to sense vibrations. Used for landslide detection, rainfall and railway, trackcutting system .Sensor is omnidirectional.Frequency range is 0.5Hz to 20Hz and operating voltage 12V DC.This is highly sensitive.

ii) Light sensor:

This second sensor which uses to sense light.this can be LDR.Cornet arrow will be ON, if fogg detected.LDR is used for purpose of light detection.Resistance of LDR is very high.

iii) Microcontroller:

We have use microcontroller AT89S52.The AT89s52 is a powerfull microcontroller which provides a highly flexible and cost effective solution to many embedded control application. Their features are 8k bytes of flash, 256 bytes of RAM.

iv) LCD:

LCD is an alphanumeric display.It can display. It is 16*2 alphanumeric display.This display two lines with maximum of 16 characters in one line.

v) Relay:

Relays are component which allow a power circuit to switch relatively high current ON and OFF or control signal must be electrically isolated from controlling circuit itself.

vi) Relay driver circuit:

The L293D is monolithic integrated high voltage, high current four channel driver.It is design to accept standard DTL, TTL logic levels.

vii) Motor:

We have use DC motor.It is 60mA (max) and load current 300mA (max).

viii) Motor driver circuit IC:

Motor driver IC L293D has use.600 RPM output current capability per channel.It provided 1.2A peak output current per channel and enable facility.

ix) Live announcement circuit:

The buzzer will be ON if landslide occure. Signals are transmitted to announcement section in fraction of seconds.To alert near by villages by live announcement section.It will inform peoples about accident.

x) Keypad:

It will utilize for security purpose.It is single user system.Person other than user will not be allow to carry out changes or run it.There is some password.

IV. COMPARISON

We have use RFID wireless networking technology.It is fastest technology to send data from site station to main station in fraction of seconds through RFID.This system uses wireless sensor network it has its own margins such as reasonably low amount of battery power and low memory availability compared to many existing technology therefore we use Digital sensor network.It detects small vibrations, high sensitivity, low cost,direction of detection is omnidirectional than analog sensor therefore our system is better than other. It is proficient technology than other techniques.

V. PRAPOSE WORK

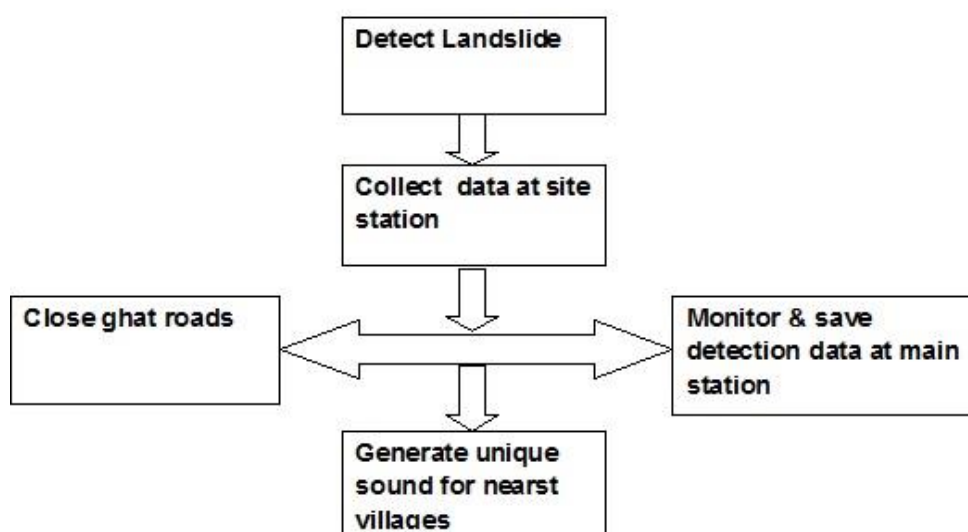


Fig3: Architectural diagram of propose system

In this system, to detect landslide when it is occurs at any place.This signals pass through RF module to site station.All information which is to be collected.When fogg is detected in ghat area.The corner arrows will be on and close the ghat road.all signals passes to main station and monitor as well as save data at main station.To generate unique sound for nearest villages.

VI. CONCLUSION

In this paper we described the design, implementation and evaluation of landslide, a distributed landslide prediction system. In contrast to existing sensor network applications, our primary objective is to build a distributed sensor system that is robust in the face of failures.From the related papers we have studied that in “Detection of Landslides”, we will be able to design & build a fully functional system For landslides detection. It will automatically detect & take action during landslides.Using this system as framework, the system can be expanded to include various other options which could include WSN using Wi-Fi, zigbee, real time monitoring etc. WSN allows easy installation &changes required for controlling & monitoring system is less. Using WSN it will also reduce wiring of appliances at hilly regions. In our future work, we will introduce our system into more complex ghats & unsupported areas whereon help can’t be reached.

VII. ACKNOWLEDGEMENT

We wish to avail this opportunity to acknowledge our profound indebtedness and extend our deep sense of gratitude to our guide Prof.V.Y Lathkar, Professor, IOKCOE for his valuable guidance profound advice and encouragement that his feel to the successful completion of this paper.

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