# "Integrated Disaster Management"

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**Abstract :***Disaster management can be defined as the organization and management of resources and responsibilities for dealing with all humanitarian aspects of emergencies, in particular preparedness, response and recovery in order to lessen the impact of disasters. The Disaster is the event that occurs without any prediction. The term "Disaster" is used to refer to as any incident, manmade accident or natural occurrence that could affect the operation of the project in whatever way. We do not access the impact of upcoming Disaster. Disasters have adversely affected not only humans but also animals and all lives on earth. Disaster cause mass damage of construction or loss of economy it gives very bad impact on the economy of the country. Disaster also affected to the climate, which also adversely affects local or regional climate. Today there is not any such developed technology which gives vulnerability of upcoming natural through any big accident that occurs indoor or outdoor. Disaster management is important for minimized the loss or lives and economy.*
**Keywords :** *Disaster, Cloudbrust, Rainfall, Avoid loss.*

## I. Introduction

As we know that, Due to cloudburst, heavy rainfall, land slide many people die every year. So, we develop this project to avoid harm of Environment and Economy. In this project there is a copper electrode fitted at the safe place, which measures the rainfall. Electrode having one set point denotes the cloudburst. If the water flows across the set point then it will pass a message through radio frequency to the office and it will alert to people. With the use of laser mesh we will make a system which can alert us about the mountain disaster. When the system will alert all the people in that area will get message by buzzer.

## II. System Implementation

**Present system**

In a present system does not have any management to protect the land sliding and cloud burst? Now a day's metal net use to protect the land sliding and this net get corrosion day by day.

**System implemented**

In this project we use The RX–ASK as an ASKHYBRID receiver module. It is an effective low cost solution for using 433 MHz the TX-ASK is an ASK hybrid transmitter module. TX-ASK are designed by the saw resonator, with an effective low cost, small size and simple to use for designing.

In many situations a communication link between devices becomes essential. This communication can be wired or wireless. If two devices are close to each other (like a MCU and a Memory) a wired link is preferred. However in many situations two devices are reasonably far apart. In that case a wireless link is preferred. Wireless communication technology use in this project is as follow

o **RF Communication**

Widely used, including Bluetooth, Radios, Cell phones, Satellite etc. In this tutorial we will learn how practically implement a wireless link between two MCUs. This link will be used to send and receive digital data. We will create a Radio Frequency link. However as I said the RF circuits are little complicated so we will use readymade RF Modules. These are easily available and low cost.

GSM modem is a specialized type of modem which accepts a SIM card, and operates over a subscription to a mobile operator, just like a mobile phone. From the mobile operator perspective, a GSM modem looks just like a mobile phone. When a GSM modem is connected to an atmega328, this allows the microcontroller to use the GSM modem to communicate over the mobile network. The soon set point is crossed by either upstream or landslide immediately message and alarm is fired. Relay can be used to start buzzer of high current when alarm condition is detected.

**System Description**

In electronic system it would be virtually impossible for package without in corpora tin printed circuit in their design. Printed circuit is metal foil conducting pattern serves as the connection medium for the

electronic medium that are assumable on the opposite side of the board. Conducting materials available are silver, brass, aluminum, & copper. Copper is most widely used. The thickness of conducting material depends upon the current carrying capacity of circuit thus a thicker copper layer will have more current carrying capacity. Ideally, under normal working conditions there should not temperature raise in conductors. When two conductors are running parallel to each other, depending upon the dielectric constant eliminate their exist certain capacitors. Similar in double sided boards. When track are either side of boards there is capacitance as two tracks are considered to metal conductor with laminate as dielectric .Mechanical considerations have to take on account like heavy components like transformer may be given separate mechanical support. The number of jumper should be minimum. Heat sensitive components must be kept away from the heat producing ones Sufficient test points must be given and components must easy accessibility for replacement. When two signal lines are running close to each other is possibly of cross take. To reduce this, an electromagnetic interference all unused copper surfaces are connected to ground line is made sufficiently broad. Normally low power and high power level wire are twisted outside PCB to protect the circuit from the electromagnetic coupling.
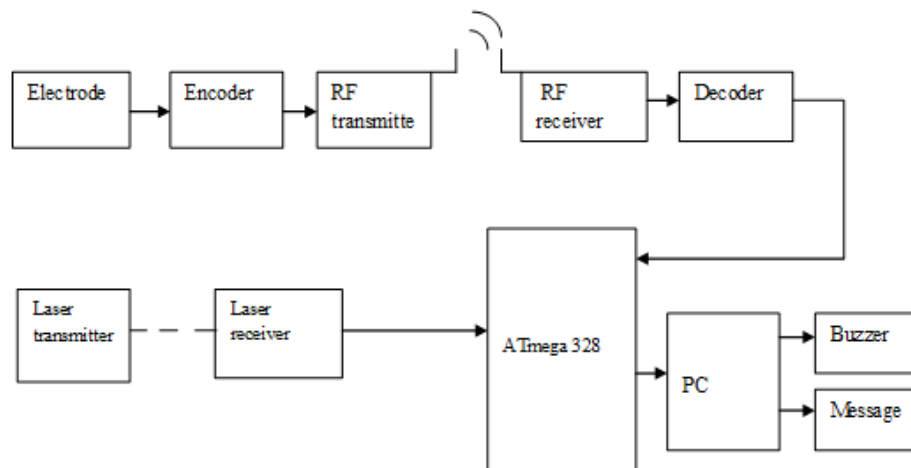


*Fig No 1: Block Diagram of Integrated Disaster Management*

Copper electrode is 10*15 metallic slabs. Copper electrode is use to measure the water flow. VCC is added in the water. Copper electrodes have set point which is denoting cloudburst. When flow across the set point then it will pass massage to encoder. This radio frequency (RF) transmission system employs Amplitude Shift Keying (ASK) with transmitter/receiver (Tx/Rx) pair operating at 434 MHz. The transmitter module takes serial input and transmits these signals through RF. The transmitted signals are received by the receiver module placed away from the source of transmission. The system allows one way communication between two nodes, namely, transmission and reception. The RF module has been used in conjunction with a set of four channel encoder/decoder ICs. Here HT12E & HT12D have been used as encoder and decoder respectively. The encoder converts the parallel inputs (from the remote switches) into serial set of signals. These signals are serially transferred through RF to the reception point.

HT12E is an encoder integrated circuit of 212 series of encoders. They are paired with 212 series of decoders for use in remote control system applications. It is mainly used in interfacing RF and infrared circuits. The chosen pair of encoder/decoder should have same number of addresses and data format. Simply put, HT12E converts the parallel inputs into serial output. It encodes the 12 bit parallel data into serial for transmission through an RF transmitter. These 12 bits are divided into 8 address bits and 4 data bits. HT12E has a transmission enable pin which is active low. When a trigger signal is received on TE pin, the programmed addresses/data are transmitted together with the header bits via an RF or an infrared transmission medium. HT12E begins a 4-word transmission cycle upon receipt of a transmission enable. This cycle is repeated as long as TE is kept low. As soon as TE returns to high, the encoder output completes its final cycle and then stops. The RF module, as the name suggests, operates at Radio Frequency. The corresponding frequency range varies between 30 kHz & 300 GHz. In this RF system, the digital data is represented as variations in the amplitude of carrier wave. This kind of modulation is known as Amplitude Shift Keying (ASK). Transmission through RF is better than IR (infrared) because of many reasons. Firstly, signals through RF can travel through larger distances making it suitable for long range applications. Also, while IR mostly operates in line-of-sight mode, RF signals can travel even when there is an obstruction between transmitter & receiver. Next, RF transmission is more strong and reliable than IR transmission. RF communication uses a specific frequency unlike IR signals which are affected by other IR emitting sources. This RF module comprises of an RF Transmitter and an RF Receiver.

The transmitter/receiver (Tx/Rx) pair operates at a frequency of 434 MHz. An RF transmitter receives serial data and transmits it wirelessly through RF through its antenna connected at pin4. The transmission occurs at the rate of 1Kbps - 10Kbps.The transmitted data is received by an RF receiver operating at the same frequency as that of the transmitter. ArduinoATMEGA328 microcontroller consist of 14 input and output analog and digital pins (from this 6pins are considered to be a PWM pins), 6 analog inputs and remaining digital inputs. Power jack issued to connect Arduino board with the computer. Externally battery is connected with the Arduino. Arduino is an open source microcontroller from which there is no feedback present in the microcontroller. This Arduino board consist of I2Cbus that can be able to transfer the data from Arduino board to the output devices. These Arduino boards are programmed over RS232 serial interface connections with ATMEGA Arduino microcontrollers. The operating volt ranges from 5v. The input voltage recommended for Arduino microcontroller is from 7v and the maximum of 12v. The DC input current given to the arduino board is in the range of 40mA. It consists of different types of memories such as flash memory, EEPROM, SRAM. The length of the Arduino board is nearly about 68.64mm and the width of the Microcontroller is about 53.4mm. The weight of the arduino microcontroller is about 20g.We can use various types of microcontroller such as 8 bit AVL Atmel microcontroller and 32 bit Atmel arm microprocessor. From these different kinds of processors, we can use those processors for various engineering projects as well as industrial applications. Some of the examples of using the Arduino in the industrial applications are controlling the actuators and sensors. We have already mentioned Arduino has been programmed by using c and c++ programming language. These c and c++ are high level Languages normally it has 18 number of input and output pins. Among those 6 pins are considered to be analog inputs. From these analog inputs, we can be able to work the Arduino microcontroller using analog inputs supply. Normally analog inputs can be in the range of 0-5Vsimilar to that digital inputs are present in the microcontroller which can act the use of Microcontroller using digital inputs
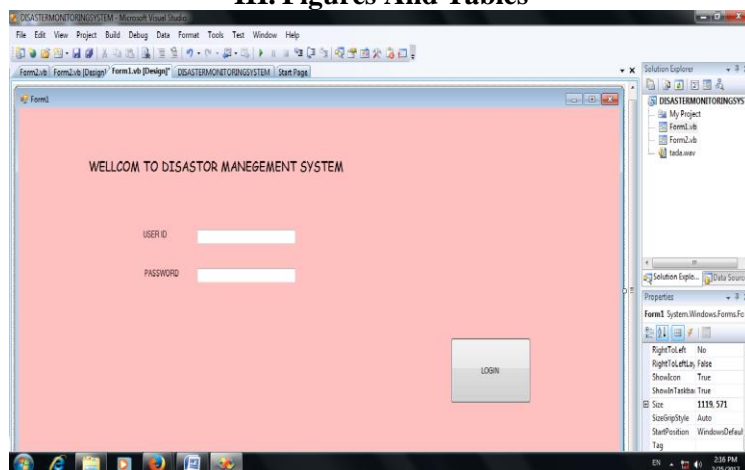
## III. Figures And Tables
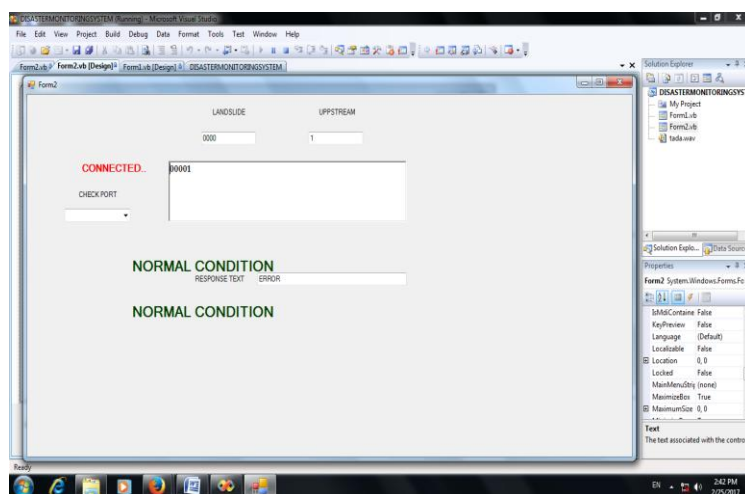


*Fig No 2: User Authentication*



*Fig No 3: Process Completion*

**Result Table**

| Value(Bit) | Cloud Bust | Land Sliding |
|---|---|---|
| 00000 | Normal Condition | Normal Condition |
| 00001 | Normal Condition | Disaster Condition |
| 11110 | Disaster Condition | Normal Condition |
| 11111 | Disaster Condition | Disaster Condition |

## IV. Conclusion

The aim of this project to study about cloudburst and land sliding areas, how are they caused, their characteristics and impact, through studying all these we are learn about land sliding and cloudburst .we can't stop these disasters but through this project we can reduce the loss of precious lives.

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[3]. Harminder *Kaur "Wireless Sensor Networks for Disaster Management", She is going to be publishing papers in these areas and currently she is working on ant colony optimization and particle swarm optimization with wireless sensor networks. in 2012 ISSN: 2278 –1323International Journal of Advanced Research in Computer Engineering & Technology Volume 1, Issue 5, July 2012*