

A review on " Implementation Of Integrated System to Avoid Flood Like Situation "

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Abstract - Flood has significant impact on human activities, it can threaten people’s lives, their property and the environment. Assets at risk can include housing, transport and public service infrastructure, and commercial, industrial and agricultural enterprises .In this paper we attempt to propose an inexpensive flood detection system to monitor the rising water in the water reservoir (dams, water bodies) and to alert people living in nearby area. This system divides into 3 parts: water sensing unit ,data display unit and alarming system. Various parts of a system are level sensor, FPGA and LCD.

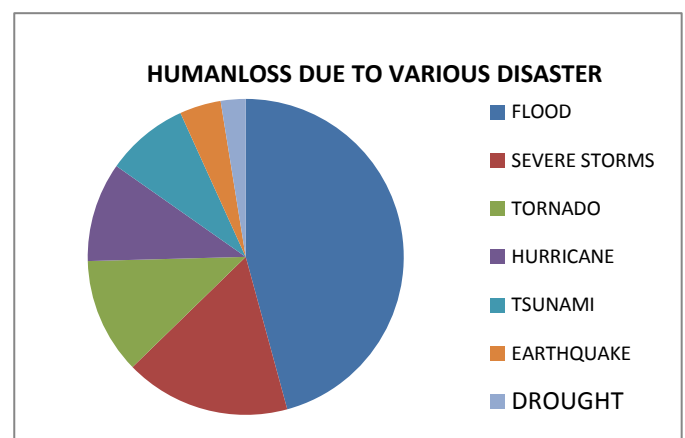
Key Words: FPGA, VLSI , Dissemination.

1.INTRODUCTION

Flood has severe effect over life ,major thread is to human life, as it once lost cannot be recovered by any technology and flood also causes serious destruction to residential properties and it also threatens public safety, particularly residents in the coastal regions or in the areas with heavy rainfalls or places nearby water reservoir.

1.1 STATISTICS

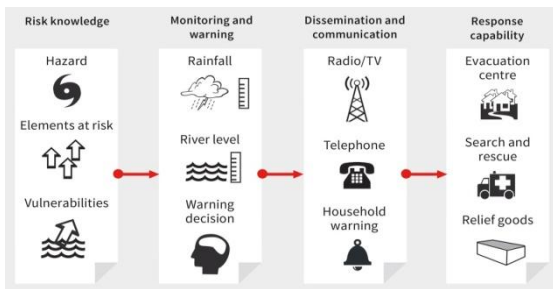
The Federal Insurance and Mitigation Administration (FEMA)’s National Flood Insurance Program (NFIP) estimates that total losses due to six-inch flood are approximately \$20,000 per 1,000 square foot home. From the following pie diagram and graph we can take a look over life loss



1.2 THEME

The main aim of my project is to secure large number of people .This is possible only if people get an idea of such disaster. Single warning can save millions of life .Although several commercial flood warning systems are currently available, many of them are either expensive or unable to identify multiple water levels. In fact, some water detection devices are triggered by a single event and their alerts are broadcasted via a buzzer. However it is often too late for people to protect their belongings and evacuate to safe ground if their flood warning appliance is solely activated by a certain water level without pre-flood warning. The goal of this design project is to create a low-cost wireless high water detection system that senses rising water in real time and determines any potential flash floods .The current design includes a gsm module ,which will transmit message to respective department and to some people. So that rescue

operation should be implemented It is depicted in the following diagram efficiently..



2. Literature Review

Most of the flood monitoring work is done with the help of microcontroller and also the warning is broadcast over tv, radios. These review papers include the following.

AbubakrRahmtalla, AbdallaMohamed, Wang Guang Wei[1] had purposed a real time wireless flood monitoring system by using the concept of the ultrasonic waves. Everything in the modern human life has undergone rapid development. This development was supported by the advance of electronics and information technology, so they had built a system which can automatically sense the water level and then send this value to the control room through the wireless system to display it on LCD. This research developed by using ATMEGA32 microcontroller.

Chen-hang Yen [2] had designed project to create an inexpensive flood detection system to monitor rising water in remote locations or residential areas. The high water detection system divides into two parts: water sensing unit and data display unit. Both subsystems are based on the ATmega 328P microcontroller and they are communicating wirelessly via radio frequency (RF) transceivers.

S. M. Khaled Reza, Shah Ahsanuzzaman Md. Tariq, S.M. MohsinReza[3] had introduced the notion of water level monitoring and management within the context of electrical conductivity of the water. More specifically, it investigates the microcontroller based water

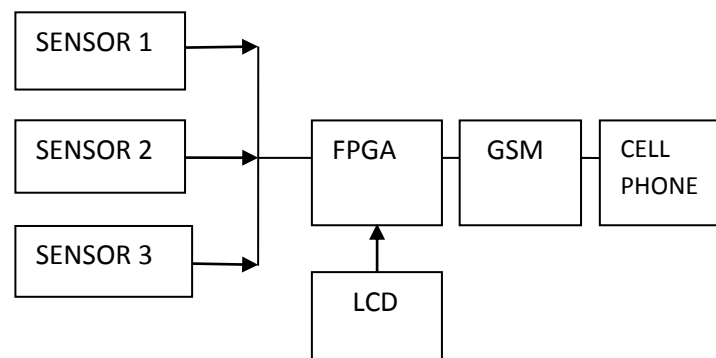
level sensing and controlling in a wired and wireless environment.

JaymalaPatil, AnujaKulkarni,[4]paper had presented that Wireless Sensor Network was architecture with a variety of potential application. Wireless sensor network have emerged as an important application of the ad-hoc networks paradigm, such as for monitoring physical environment.

Sui-gao Ye, Bin He Hui-cheng Zhou[6], emphasized on the resource information of flood control system which has some characteristics which include dynamic, diversity, multi-source, randomness and magnanimity. How to fast and accurately obtain the right information from mass information had become a very big problem for users of flood control system. To solve the problem of resource information development and utilization in flood control system, based on the basic theory of metadata, this paper studied flood control information

3. Proposed Work

In this paper FPGA is used for controlling purpose and also has provision for customized SMS to respective authorities



In above block diagram we have FPGA as controller and various level sensors to measure actual level of water and this input is compared with threshold value. Then respective value shown on LCD and SMS is send to number to respective department.

3.1 DESCRIPTION

In the water reservoir(dams, water bodies)there will be a set of sensors . They work

like a switch, as the work of the sensor will be connected in circuit. When water level in reservoir starts to approach respective levels, the sensors that is installed in the tank starts to get activated one by one indicating the water level in the water reservoir.

FPGA

A field programmable gate array is an designed to be configured by a customer or a designer after manufacturing application. The FPGA configuration is generally specified using a hardware description language (HDL). FPGAs contain an array of programmable logic blocks, and a hierarchy of reconfigurable interconnects that allow the blocks to be "wired together", like many logic gates that can be inter-wired in different configurations

GSM

GSM is a mobile communication modem; it stands for global system for mobile communication (GSM). The idea of GSM was developed at Bell Laboratories in 1970. It is widely used mobile communication system in the world. GSM is an open and digital cellular technology used for transmitting mobile voice and data services operates at the 850MHz, 900MHz, 1800MHz and 1900MHz frequency bands. GSM system was developed as a digital system using time division multiple access (TDMA) technique for communication purpose.

LCD MODULE

LCD (Liquid Crystal Display) screen is an electronic display module and find a wide range of applications. A 16x2 LCD display is very basic module and is very commonly used in various devices and circuits. These modules are preferred over seven segments and other multi segment LEDs. The reasons being: LCDs are economical; easily programmable; have no limitation of displaying special & even custom characters (unlike in seven segments), animations and so on.

4. CONCLUSIONS

Floods have affected normal life moreover we have lost enormous human lives. There are

various platforms on which we can develop flood monitoring techniques. The main aim of monitoring system is to monitor water level. In addition to monitoring we can also alert people living in that region. In this paper VLSI system on flood monitoring and alarming system will be designed and implemented in hardware on FPGA board. The output result is obtained in Hyper Terminal window and also display on the LCD. This design can be of great help in real life in the flood prone area especially near the river and dam.

5. REFERENCES

- 1..AbubakrRahmtalla, Abdalla Mohamed , Wang Guang Wei "Real Time Wireless Flood Monitoring System Using Ultrasonic Waves" at International Journal of Science and Research (IJSR) ISSN (Online): 2319-7064 Impact Factor (2012): 3.358 International Journal of Science and Research (IJSR) ISSN (Online): 2319-7064 Impact Factor (2012): 3.358v
- 2 .Chen-hang Yen "Low-Cost Wireless High Water Detection System" at MEng Field Advisor: Bruce Land Date: January, 2014
3. S. M. Khaled Reza, Shah Ahsanuzzaman Md. Tariq, S.M. Mohsin Reza. "Microcontroller Based Automated Water Level Sensing and Controlling: Design and Implementation Issue" at Proceedings of the World Congress on Engineering and Computer Science 2010 Vol I WCECS 2010, October 20-22, 2010, San Francisco, USA
- 4..Jaymala Patil , Anuja Kulkarni, "Wireless Sensor Network Using Flood Monitoring", International Journal of Computer Science and Mobile Computing Vol.2 Issue. 11, November-2013, pg. 297-302,
5. Biswajeet Pradhan, Mahyat Shafapour Tehrani, and Mustafa NeamahJebur. " A New Semiautomated Detection Mapping of Flood Extent From TerraSAR-X Satellite Image Using Rule-Based Classification and Taguchi

Optimization Techniques” IEEE TRANSACTIONS ON GEOSCIENCE AND REMOTE SENSING

6 .Sui-gao Ye, Bin He ,Hai-gai kang and Hui-cheng Zhou .“Flood control information metadata theory and its application”Hydraulic Engineering Institute, alian University of Technology, China.

Published in: Computer Science and Network Technology (ICCSNT), 2011 International Conference on 24-26

Dec.2011NSPECAccessionNumber: 1267511

DOI: 10.1109/ICCSNT.2011.6181979

7. Sandeep Gandla, Waleed K. Al-Assadi, Sahra Sedigh and Raghu A. R. Rao(2008), Design and FPGA Prototyping of a Flood Prediction System, Department of Electrical and Computer Engineering, Missouri University of Science and Technology.

8.Inyiama H. C., Obota M. E.,(2013), Designing Flood Control Systems Using Wireless Sensor Networks, International Journal of Engineering Research and Applications (IJERA), Vol. 3, Issue 1, January -February 2013, pp.1374-1382.

9. Jirapon Sunkpho, Chaiwat Ootamakorn,(2011), Real-time flood monitoring and warning system, Songklanakarin Journal of Science and Technology, 33 (2), 227-235, Mar. - Apr. 2011.

10. S. Vieweg, “Microblogged contributions to the emergency arena: Discovery, interpretation and implications,” in CSCW, 2010

11. P. Meier, “What is Big (Crisis) Data?” iRevolution, June 2013. [Online].

Available:

<http://irevolution.net/2013/06/27/what-is-big-crisis-data/>

12 .Xilinx LogiCORE IP external memory controller datasheet.

BIOGRAPHIES



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