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FLOOD ALERT -WITHOUT TOWER

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Abstract- Zigbee hardware is connected to the mobiles via OTG communication when network is not present. Zigbee is connected in the Dam for immediate communication of water & its flow level to communicate with the server. Public can communicate to the regional server to fetch the levels of water release & emergency alert is provided in case of excess water release from the Dam. This event will happen with Network presence or without network presence. User can also make Emergency call / send SMS to the pre stored numbers like Hospitals / Corporation / Police / Relatives. User can also fetch Safe Zone live Mapping with internet or stored images without Internet. We can check the quality of water, whether it is useful for drinking purpose and also check the contamination of water with the help of the PH sensor.

Keywords- Sms Alert, Wireless (Zigbee), Gps, PH sensor, Flow level sensor.

I. INTRODUCTION

Our advancement in technology is not reflected when we are going back to a third world country fighting natural disasters often. There have been arrays of research studies that consider water level sensing, monitoring and /or prediction and offer valid system support for deployment of such system. When the geographic location is closely situated – a light weight solution like wireless sensor network based architecture can be an excellent solution as we have seen in many existing systems.

If for any environmental factor, the gradient information changes in a server – it will propagate that information to interested servers which may be affected by the change of that particular server affecting nearby servers to change gradient information in a cascading fashion accordingly.

It can be the case where a gradient server experiences sudden rise of water level and as electrons travel faster than any physical entity, we can expect that server to propagate that water level rise information to other servers along the connected river system and if certain thresholds are crossed, adequate alarms can be generated. We have also considered a web server that will act as the spokesperson for the entire system and will be responsible for doing long term data analysis unlike the local servers.

An android app is deployed in all the Mobiles of the Public. Zigbee hardware is connected to the mobiles via OTG communication when network is not present. Zigbee is connected in the Dam for immediate communication of water & its flow level to communicate with the server. Public can communicate to the server to fetch the levels of water release & emergency alert is provided in case of excess water release from the Dam. This event will happen with Network presence or without network presence.

User can also make Emergency call / send SMS to the pre stored numbers like Hospitals / Corporation / Police / Relatives. User can also fetch Safe Zone live Mapping with internet or stored images without Internet.

II. RELATED WORKS

In the year **2005, "GRAdient Broadcast: A Robust Data Delivery Protocol for Large Scale Sensor Networks".** Fan ye, Gary zhong, Songwu lu, lixia zhang. In this paper describes about the GRAdient Broadcast (GRAB) which is designed for robust data delivery to avoid unreliable nodes and fallible wireless links using a new set of mechanisms and protocols. Similarly, to forward the sensed data GRAB builds and maintains a cost field by providing each sensor the direction. From each source to the receiver, it forwards the data along with the band of interleaved mesh GRAB. Broadcast with large scale and reliability for delivering the multiple data nodes, without dependency on any individual ones. Based on the analysis and extensive simulation, we can evaluate the GRAB performance.

In the year **2012, "Wireless Sensor Networks Issues and Applications**". Rajkumar, Vani B A, KiranJadha, Vidya S In this paper, WSN communicate with a centralized controller or satellite**.** Across geographical area, a smart WSN consist of a number of sensors. Each sensor has a capacity and intelligence for signal processing and networking of data using wireless communication. Conceptual and optimization problems such as deployment, location, and tracking are provided by the sensor network. When compared to traditional distributed applications, typical WSN application and dependency on applications are lesser.

In the year **2008**, "**An Experiment with Reflective Middleware to Support Grid-based Flood Monitoring".** Danny Hughes1, Phil Greenwood1, Gordon Blair1, Geoff Coulson1, Paul Grace1 Florian Pappenberger2, Paul Smith2 and Keith Beven2.

This paper describes about a wireless sensor network for flood warning. It is capable of integrating intensive flood modeling purposes with remote fixed-network grids and performing on-site grid computation. Local computation can be drive the adaptation of WSN behavior based on awareness of environmental conditions such as predicted flood risk and power monitoring.

Flow-rate measurements are calculated based upon a series of images taken by a digital camera deployed overlooking the river. WSN and Grid application domains supported by GridKit middleware.

In the year **2008**, " **Early Warning And Mapping For Flood Disasters"** D. Mioca, *, B. Nickersonb, E. MacGillivrayc, A. Mortonc, F. Antond, D. Frasera, P. Tang e,(Ernest.MacGillivray, Andrew.Morton)@gnb.ca dDepartment of Informatics and Mathematical Modeling, Technical University of Denmark, Denmark - fa@imm.dtu.dk eNew Brunswick Department of Environment, Marysville Place, Fredericton NB Canada E3B 5H1- Pat.Tang@gnb.ca

In this paper, early warning and mapping for flood disasters based on a Web GIS based system. The web based GIS model can dynamically displays information about the flood to the decision makers and general public. Data integration, floodplain delineation, and online map interfaces is the methodology. Current flood events and displays satellite imagery and a digital elevation model integrated with the flood plain area that can be accessed by the user using web based GIS.

In the year **2014**, "**Run Watchers: Automatic Simulation-Based Decision Support in Flood Management"** Artem Konev, J¨urgen Waser, Bernhard Sadransky, Daniel Cornel, Rui A.P. Perdig˜ao, Zsolt Horv´ath, and M. Eduard Gr¨oller.

This paper describes about the protection plans for flood events based on the simulation. Existing solution requires more computation time for an exhaustive search, or demand for a time-consuming. Multiple parallel simulation runs based on the automation control.

Because of re-use of simulated states this approach to the system is more efficient traversal of the search space and increase the overall performance. This system generate large and complex decision trees. Run Watchers using interactive, clustered timelines to visualize the entire set of decisions. To justify the decisions and to convey plan details, Run Watchers automatically generates storyboard.

In the year **2014,** "**To design an Architectural Model for Flood Monitoring using Wireless Sensor Network System".**

1Saurabh Shukla 2Dr.G. N. Pandey 1RGIPT, Rae-Bareli, India, 2Arunachal University of Studies, Namsai, Arunachal Pradesh, India, 2IIIT, Allahabad, India.

This paper describes about the real time monitoring system of water conditions such as water level, flow and precipitation level using wireless sensor network system architecture. This sensor sends information about the flood to the regulatory and welfare authorities.

It is composed of network sensor, processing/transmission unit and a server. We can monitor the water condition of identified areas. This system has a communication between the server and remotely placed sensors.

III. EXISTING SYSTEM

People are facing drastic Human & Monetary lose due to the unexpected and sudden release of water. The disadvantages of this system are

- There is no automatic system to detect the flood in the area
- There is no alert system
- Unreliable
- Less security
- Less effective

IV. PROPOSED SYSTEM

Distributed system using PH & flow level sensors are deployed all over and monitored, gathered to the centralized server for speedy & emergency support. The mobile must have the Zigbee either it is inbuild or through the OTG cable to receive the alert message from the server. This paper methodology is SMS Alert, Wireless. This System has the six modules, such as User Registration Application, Server Deployment, Embedded Sensor Interface, Wireless Zigbee Communication, Auto Call & Sms Interface, Gps Safe Zone Notification. The Dam contains the Zigbee which transform the information about the water quality and the flow level to the server. If the water level increases, the flow level sensor senses the level and intimate to the server. The server contains all the information about the user and the Dam which transfer the message to the registered user (public).

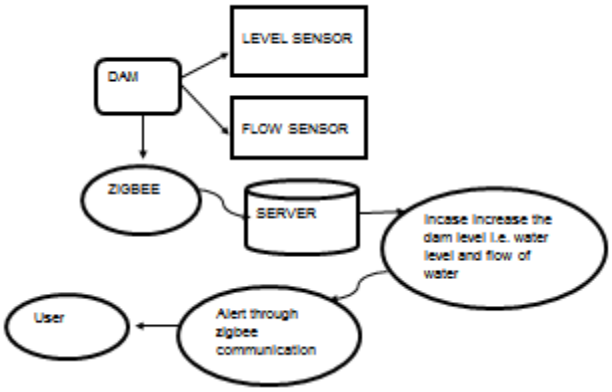
Finally alert is given to android users. SMS will send to registered mobile number in case of any emergency. Also SMS send to hospital, police and relatives like that. User fetch safe zone live nearest area with mapping in your internet or stored images without internet.

V. DESIGN OVERVIEW

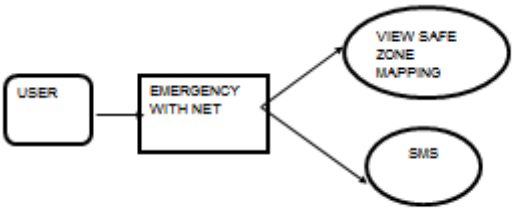
ARCHITECTURE DIAGRAM:

DATAFLOW DIGRAM

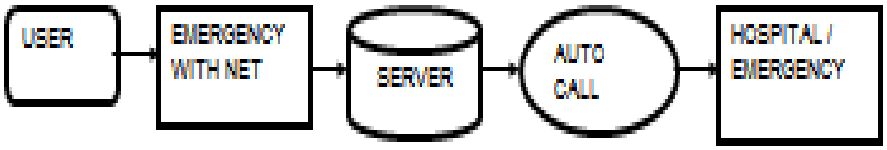
LEVAL 0:



LEVAL 1:



LEVAL 2:



VI. CONCLUSION

Large scale deployment of a sensor based system is a challenging task specifically when we are targeting an eminent natural disaster.We have presented in this system flood alert for every people using with internet or without internet. Also safe location map is implemented. The PH sensor is able to measure physiochemical parameters of water quality, such as flow and the oxidation reduction potential. It is used to detect water contaminants.

REFERENCES

[1] CloudSim, The CLOUDS Lab, www.cloudbus.org/cloudsim. (Last accessed on March, 2014)
[2] Bangladesh Water Development Board, Weblink: www.bwdb.gov.bd. (Last accessed on March, 2014)
[3] Flood Forecasting and Warning Center, Bangladesh. Weblink: www.ffwc.gov.bd (Last accessed on March, 2014)
[4] Honeywell,LiquidLevelSensor,Weblink:http://sensing.honeywell.com/index.php?ci_id=4128&la_id=1&Ntk=si_all_products&N=1235&Ntt=ll103101(Last accessed on March, 2014)
[5] Ultrasonic Rangile Module, Weblink:http://www.micropik.com/PDF/HCSR04.pdf (Last accessed on March, 2014).
[6] F. Ye et al., " Gradient Broadcast: A robust data delivery protocol for large scale sensor network,", Wireless Networks11, 285-298, 2005.
[7] J. Faruque et al., " Analysis of Gradient-based protocols in sensor networks,"DCOSS, 2005.
[8] M. Chen et al., "Path-based Failure and Evolution Management," In Proceedings of the First Symposium on Networked Systems Design and Implementation (NSDI), 2004.

[9] Retamar, F.C. Garcia, J.J. Yabut, and J.Javier, "Design and Development of a Remote Station for Real-time Monitoring of Urban Flooding", Proceedings of the Asia-Pacific Advanced Network 2014 v. 38, p. 99-114.
[10] R. Caruana, A. Niculescu-Mizil., "An empirical comparison of supervised learning algorithms", ICML '06 Proceedings of the 23rd international conference on Machine learning Pages 161-168
[11] Breiman, L., 2001, Random forests. Machine Learning, 45, 5-32.
[12] Scikit-learn: Machine Learning in Python, Pedregosa et al., JMLR 12, pp. 2825-2830, 2011.
[13] Breiman, L. (n.d.). Random Forests Leo Breiman and Adele Cutler. Retrieved August 10, 2015, from http://www.stat.berkeley.edu/~breiman/RandomForests/cc_home.html

