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Effective Flood Alert with Android & IOT Based Emergency Support in Network Unidentified Zone

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Abstract: ***In existing system, individuals face forceful human & financial lose owing to the sudden and unforeseen unharness of water. The projected system, distributed system mistreatment water & flow level sensors area unit deployed everywhere and monitored, gathered to the centralized server for quick & emergency support. within the modification half, AN automaton app is deployed all told the mobiles of the general public. Zigbee hardware is connected to the mobiles via otg communication once network isn't gift. Zigbee is connected within the dam for immediate communication of water & its flow level to speak with the regional server wherever another Zigbee is connected. Public will communicate to the regional server to fetch the degree of water unharness & emergency alert is provided just in case of excess water unharness from the dam. This event can happen with network presence or while not network presence. User can even create emergency decision / send SMS to the pre keep numbers like hospitals / corporation / police / relatives. User can even fetch safe zone live mapping with web or keep pictures while not web.***

Keywords: Global Positioning System, Java Foundation Classes, Abstract Window Toolkit, Software Quality Assurance.

I. INTRODUCTION

Our advancement in technology isn't mirrored after we ar going back to a 3rd world country fighting natural disasters typically. There are arrays of analysis studies that take into account water level sensing, observation and /or prediction and supply valid system support for readying of such system. once the geographic location is closely settled – a light-weight weight answer like wireless device network based mostly design is a superb answer as we've seen in several existing systems.If for any environmental issue, the gradient info modifications during a server – it'll propagate that info to interested servers which can be full of the change of that specific server poignant close servers to alter gradient info during a cascading fashion consequently. It is the case wherever a gradient server close to the supply of the stream experiences sudden rise of water level and as electrons travel quicker than any physical entity, {we can|we will|we ar able to} expect that server to propagate that water level rise info to alternative servers on the connected stream system and if bound thresholds are crossed, adequate alarms is generated. we've conjointly thought-about an online server that may act because the exponent for the whole system and can be to blame for doing long run knowledge analysis in contrast to the native servers.

II. LITERATURE SURVEY

A. *[1] Gradient Broadcast: A Robust Data Delivery Protocol for Large Scale Sensor Networks by Fan Ye, Gary Zhong, Songwu Lu and Lixia Zhang in 2005 Springer Science + Business Media, Inc. Manufactured in the Netherlands.*

Although knowledge forwarding algorithms and protocols are among the primary set of problems explored in device networking, a way to faithfully deliver sensing knowledge through an enormous field of tiny, vulnerable sensors remains a look challenge. during this paper we have a tendency to gift Gradient Broadcast (GRAB), a brand new set of mechanisms and protocols that is intended specifically for strong knowledge delivery in face of unreliable nodes and fallible wireless links. like previous work, GRAB builds and maintains a price field, providing every device the direction to forward sensing knowledge. completely different from all the previous approaches, however, GRAB forwards knowledge on a band of interleaved mesh from every supply to the receiver. GRAB controls the breadth of the band by the number of credit carried in every knowledge message, permitting the sender to regulate the hardiness of knowledge delivery. GRAB style harnesses the advantage of enormous scale and depends on the collective efforts of multiple nodes to deliver knowledge, while not dependency on any person ones. we've evaluated the GRAB performance through each analysis and in depth simulation. Our analysis shows quantitatively the advantage of interleaved mesh over multiple parallel methods. Our simulation any confirms the analysis results and shows that GRAB will with success deliver over ninetieth of packets

with comparatively low energy value, even underneath the adverse conditions of half-hour node failures combined with V-J Day link message losses

B. *[2] Analysis of Gradient-Based Routing Protocols in Sensor Networks by Jabed Faruque, Konstantinos Psounis, and Ahmed Helmy in DCOSS 2005,*

Every physical event leads to a natural info gradient within the proximity of the development. Moreover, several physical phenomena follow the diffusion laws. This natural info gradient is accustomed style economical information-driven routing protocols for device networks. Information-driven routing protocols supported the natural info gradient, is also categorised into 2 major approaches: (i) the single-path approach and (ii) the multiple-path approach. during this paper, employing a regular grid topology, we have a tendency to develop analytical models for the question success rate and therefore the overhead of each approaches for ideal and lousy wireless link conditions. we have a tendency to validate our analytical models victimisation simulations. Also, each the analytical and therefore the simulation models ar accustomed characterize every approach in terms of overhead, question success rate and increase in path length.

C. *[3] Quality of Information in Wireless Sensor Networks: A Survey by Vinay Sachidananda, Abdelmajid Khelil, Neeraj Suri. In DFG GRK 1362 (GKmM), EU INSPIRE and EU CoMiFin.*

In Wireless sensing element Networks (WSNs) the operative conditions and/or user needs area unit usually desired to be evolvable, whether or not driven by changes of the monitored parameters or WSN properties of configuration, structure, communication capacities, node density, and energy among several others. whereas considering resolvability, delivering the specified data with the desired quality (accuracy, timeliness, dependableness etc.) outlined by the user constitutes a key objective of WSNs. Most existing analysis efforts handle fluctuations of operation conditions so as to deliver data with the very best doable mere quality. during this paper, we have a tendency to take these aspects into thought and survey existing work on Quality of data (QoI). As a contribution, we have a tendency to categorise WSN data into a collection of abstract categories for generality across varied application sorts. Our survey shows that presently QoI is typically addressed in isolation by specializing in distinct processing operations/building blocks like information assortment, in-network process (compression, aggregation), info transport and sink operations for higher cognitive process. This survey comprehensively explains the various views of QoI on attributes, metrics and WSN useful operations mapped with existing approaches. The survey conjointly forms the idea for specifying required QoI analysis problems.

D. *[4] Path-Based Failure And Evolution Management by Mike Y. Chen, Anthony Accardi, Emre Kıcıman, Jim Lloyd, Dave Patterson, Armando Fox, Eric Brewer in University of California at Berkeley, 2004*

We exhibit in a different way to touch upon overseeing disappointments and development in large, advanced confiscate frameworks utilizing runtime ways that. we tend to utilize the ways in which solicitations complete as they move the framework as our center reflection, and our "full scale" approach concentrates on section cooperations rather than the delicate parts of the elements themselves. ways that record half execution and connections, ar shopper and demand driven, and happen in adequate volume to empower factual examination, tired the simplest way that's effectively reusable crosswise over applications. Robotized factual investigation of varied ways that takes into thought the identification and analysis of advanced disappointments and therefore the analysis of development problems. Specifically, our approach empowers altogether a lot of grounded skills in disappointment recognition, disappointment finding, have an effect on investigation, and understanding framework development. we tend to investigate these skills with 3 real usage, 2 of that profit an excellent several solicitations for each day. Our commitments incorporate the approach; the viable, extensible, and reusable engineering; the various factual examination motors; and therefore the exchange of our involvement with a high-volume generation profit over quite whereas.

E. *[5] To Design an Architectural Model For Flood Monitoring Using Wireless Sensor Network System by Saurabh Shukla, Dr.G. N. Pandey in IJCSIT, 2014*

One of the major disasters occurring in the world is flooding. To monitor the water conditions such as water level, flow and precipitation level, wireless sensor network system architecture for real time monitoring has been developed and presented in this paper the objective of this system is to send real time information of flooding to the regulatory and welfare authorities so that suitable action could betaken. This system architecture is composed of sensor network, processing/transmission unit and a server. This wireless sensor network system could remotely monitor the real time data of water condition in the identified areas. For

wireless sensor networks, the systems are wireless, have scarce power, are real-time, utilize sensors and actuators as interfaces, have dynamically changing sets of resources, aggregate behavior is important and location is critical. In this system a communication is done between the server and remotely placed sensors. The server gives the real time water conditions to the welfare authorities.

F. *[6] An Experiment With Reflective Middleware To Support Grid-Based Flood Monitoring by Danny Hughes, Phil Greenwood, Gordon Blair, Geoff Coulson, Paul Grace in John Wiley and Sons Ltd., August 2008*

Flooding may be a growing downside, that affects quite 100 percent of the united kingdom population. the value of harm caused by flooding correlates closely with the warning time given before a flood event, creating flood watching and prediction essential to minimizing the value of flood harm. This paper describes a wireless device network for flood warning that isn't solely capable of desegregation with remote fixed-network grids for computationally-intensive flood modeling functions, however is additionally capable of acting on-the-spot grid computation. This practicality is supported by the reflective and component-based Grid Kit middleware, that provides support for each WSN and Grid application domains.

G. *Optimal Water Quality Monitoring Network Design for River Systems by Ilker T. Telci, Kijin Nam, Jiabao Guan, Mustafa M. Aral in Elsevier Ltd 2009*

Typical tasks of a watercourse watching network style embrace the choice of the water quality parameters, choice of sampling and mensuration ways for these parameters, identification of the locations of sampling stations and determination of the sampling frequencies. These primary style issues could need a range of objectives, constraints and solutions. during this study we tend to specialize in the optimum watercourse water quality watching network style facet of the general computer programme and propose a unique methodology for the analysis of this downside. within the projected analysis, the locations of sampling sites ar determined such the material detection time is reduced for the watercourse network whereas achieving most reliableness for the watching system performance. Altamaha watercourse system within the State of Georgia, USA is chosen as associate degree example to demonstrate the projected methodology. The results show that the projected model will be effectively used for the optimum style of watching networks in watercourse systems.

H. *[8] Wireless Sensor Networks Issues and Applications by Raj Kumar, Vani B A, Kiran Jadhav, Vidya S in IJCTA | Sept-Oct 2012*

Wireless detector Networks have return to the forefront of the scientific community recently. Current WSNs generally communicate directly with a centralized controller or satellite. On the opposite hand, a wise WSN consists of variety of detectors unfold across a geographical area; every sensor has wireless communication capability and comfortable intelligence for signal process and networking of the information. The structures of WSNs ar tightly application-dependent, and plenty of services are enthusiastic about application linguistics. Thus, there's no single typical WSN application, and dependency on applications is above in ancient distributed applications. The application/middleware layer should give functions that make effective new capabilities for economical extraction, manipulation, transport, and illustration knowledge|of knowledge} derived from detector data. This paper provides a survey of Wireless detector
Networksproblems and Applications, where the use of such sensor networks has been proposed.

III. EXIXTING SYSTEM

People face forceful Human & financial lose attributable to the sudden and sharp unleash of water. a number of the disadvantages of existing approaches ar

A. there's no automatic system to sight the get the realm
B. there's no alert system
C. Unreliable
D. Less security
E. Less effective

IV. PROPOSED SYSTEM

Distributed system exploitation water & flow level sensors ar deployed everywhere and monitored, gathered to the centralized server for quick & emergency support. associate humanoid app is deployed altogether the Mobiles of the general public. Zigbee hardware is connected to the mobiles via OTG communication once network isn't gift. Zigbee is connected within the Dam

for immediate communication of water & its flow level to speak with the regional server wherever another Zigbee is connected. Public will communicate to the regional server to fetch the amount of water unleash & emergency alert is provided just in case of excess water unleash from the Dam. This event can happen with Network presence or while not network presence. User also can create Emergency decision / send SMS to the pre keep numbers like Hospitals / Corporation / Police / Relatives. User also can fetch Safe Zone live Mapping with net or keep pictures while not net.

Fig 1.Architecture Diagram

A. Some of the Disadvantages of Existing Approaches are

1) You can get pre intimation of flood attack
2) Full automated system
3) Reliable
4) High security
5) More effective

V. MODULES

A. Android Application

Develop Associate in Nursing robot application. Mobile shopper is Associate in Nursing robot application that created and put in within the User's robot transportable. in order that we will perform the activities. the appliance 1st Page comprises the User registration method. We'll produce the User Login Page by Button and Text Field category within the robot. whereas making the robot Application, we have todesign the page by dragging the tools like Button, Text field, and Radio Button. Once we have a tendency to designed the page we've got to jot down the codes for every. Once we have a tendency to produce the total mobile application, it'll generated as robot Platform Kit (APK) file. This APK file are going to be put in within the User's movable Associate in Nursing Application. during this module, you'll be able to register hospital range, corporation range and police for emergency purpose.

B. Server Deployment

The Server can monitor the complete flood data in their info and verify them if needed. additionally the Server can store the complete flood data in their info. additionally the Server needs to establish the association to speak with the Users. The Server can manifest every user before they access the appliance. in order that the Server can stop the Unauthorized User from accessing the appliance.

C. Embedded Sensors Interface

The Server can monitor the complete flood data in their info and verify them if needed. additionally the Server can store the complete flood data in their info. additionally the Server needs to establish the association to speak with the Users. The Server can manifest every user before they access the appliance. in order that the Server can stop the Unauthorized User from accessing the appliance.

D. Wireless Zigbee Communication

In this module we have a tendency to use zigbee to speak the varied devices. Zigbee could be a wireless technology normal for exchanging knowledge over short distances from fastened and mobile devices, making personal space networks (PANs) with high levels of security. It will connect many devices, overcoming issues of synchronization. All devices area unit observation the water level and forward the readings to server victimization zigbee. Zigbee is connected to dam and main sever.

E. Autocall and SMS Interface

We can style and implementation of water level detection and alerting. observe the water level victimisation sensing element. just in

case increase the water level and speed suggests that, data is send to server. Finally alert is given to automaton users. SMS can send to registered mobile variety just in case of any emergency. conjointly SMS send to hospital, police and relatives like that.

F. GPS Safe Zone Notification

In this module, we will style and implementation of safe zone notification. User fetch safe zone live nearest space with mapping in your web or hold on pictures while not web.

VI. SCREENSHOTS

Fig 2.Flood Alert System

Fig 3.Registering Details

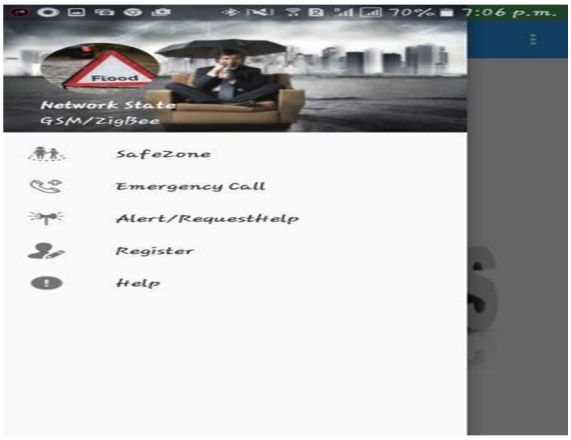

Fig 4.List of Options

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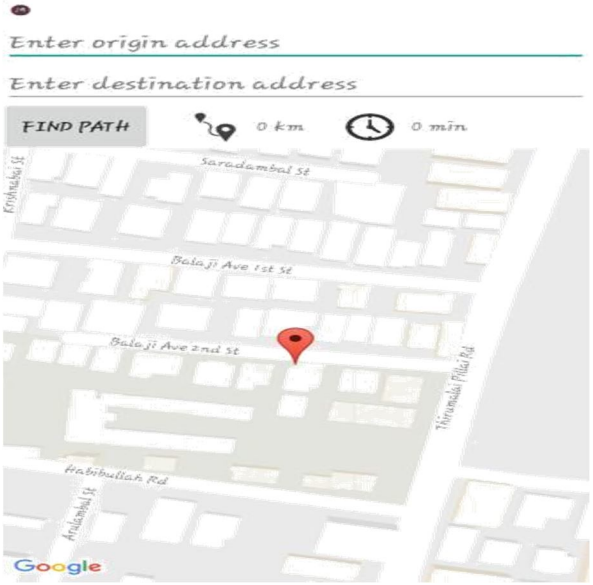

Fig 5.Route Map

Fig 6.Emergency Call

Fig 7.Emergency Contacts

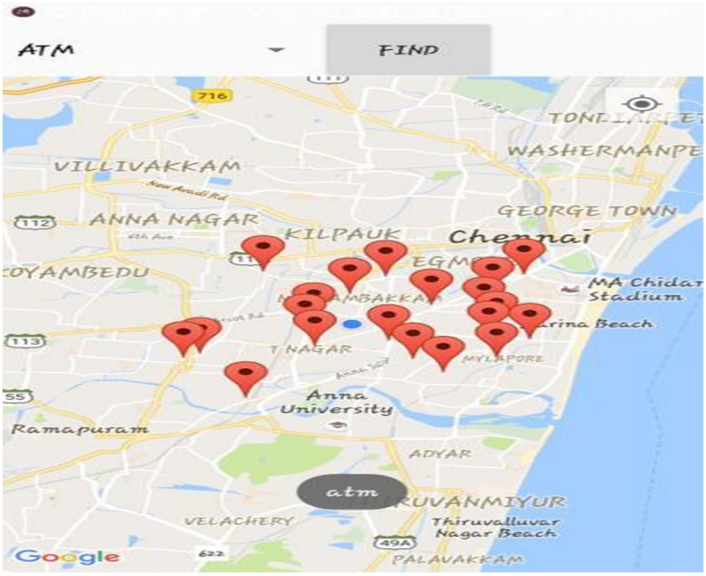

Fig 8.Locating Help

VII. CONCLUSION

Detect the water level and flow of water that's speed in DAM. just in case water level is raised suggests that info sends to user through zigbee and OTG cable. just in case far more than water level suggests that emergency alert is shipped to peoples. This method can happen with network communication or while not network. an extra method is live safe zone mapping with web and keep pictures while not web.

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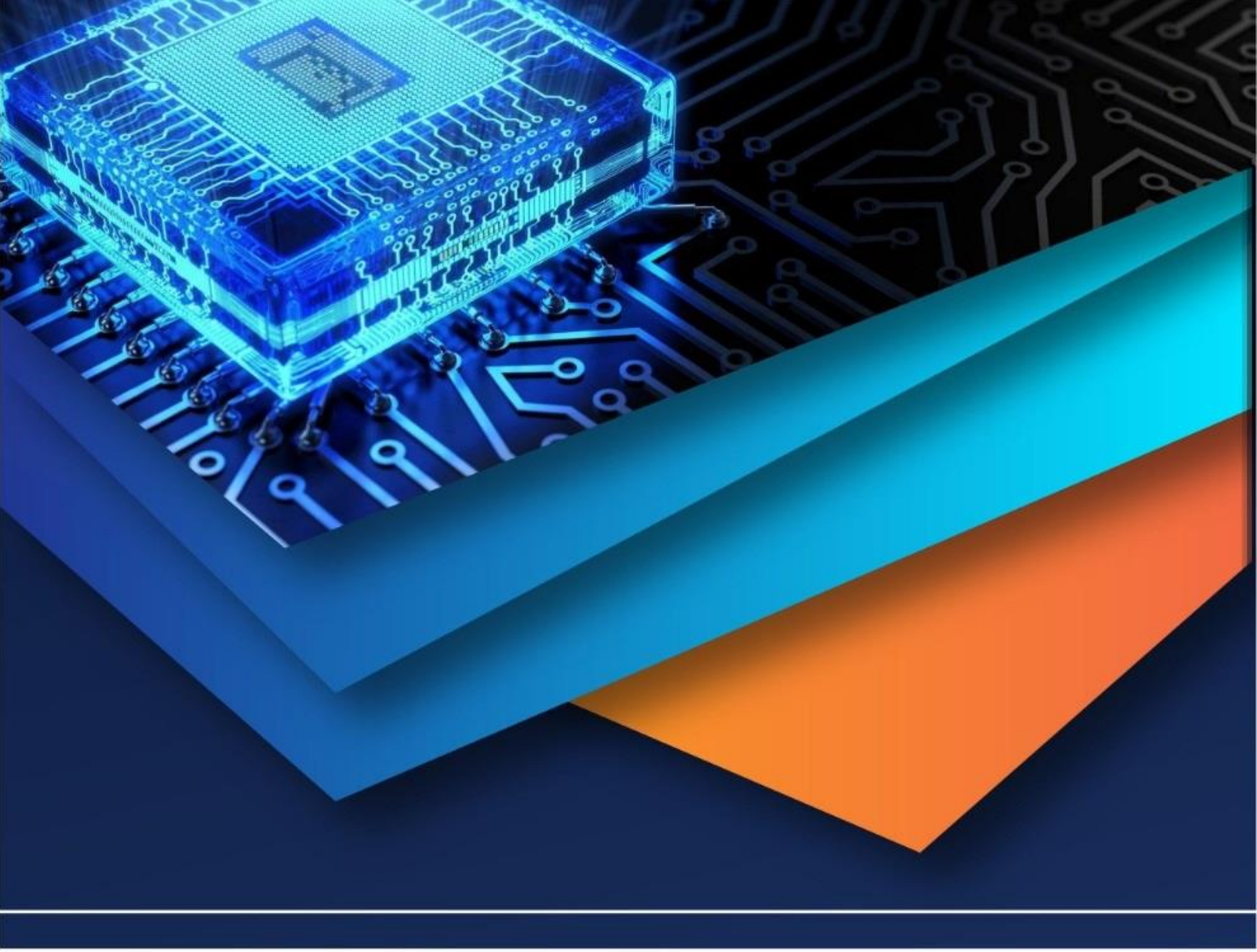

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