International Journal of Science Academic Research
Vol. 04, Issue 07, pp.5981-5983, July, 2023
Available online at http://www.scienceijsar.com

ISSN: 2582-6425

Research Article

PRIOR CHILD RESCUE SYSTEM FROM BOREWELL USING IoT

Gulshan Banu, A. and *Keerthipriya, S.

Department of Computer science and Engineering, Sree Sakthi Engineering College, Karamadai, Mettupalayam, India

Received 17th May 2023; **Accepted** 25th June 2023; **Published online** 30th July 2023

Abstract

India is of the developing countries where people are based on natural resources like water, air, land etc., This project is based on the rescue of children from uncovered bore well system in many places. Due to the uncovered bore well young children fall into the open bore wells. But only few children are being rescued while others lose their lives. The actual purpose of the bore well is to provide sufficient water but it takes lives of so many innocent children. In the previous systems the indications or the alarms were sent only to the concern person after the child falls into the bore well system. In this project the child is rescued before it falls into the bore well. This project consists of a sensor placed very close to the bore well. It will identify whether the child is near to the bore well or not. If it identifies a child near to the bore well it will send the notification to the nearest police station, fire service office, to the concern owner and to the child's parents so that the child can be saved. The proposed system provides the simple and the effective way to protect a child from the bore well. Children are the future building blocks of the country they must be saved from some problems like these immediately.

Keywords: IoT, Children.

INTRODUCTION

India is an agricultural country and many farmers depend upon ground water to yield the crop. Due to the enormous amount of increase in population, the crop which is growing is not sufficient to satisfy the hunger of all the people because of scarcity of water and this results in digging of borewells which are burrowed for ground water deliberation. After obtaining water from the borewells, they are not closed properly and kept uncovered. In the current scenario, falling inside the borewells have been abundantly increasing and this is occurring in many of the towns and cities all over the country. The main reason for these incidents are by the reason of in attentiveness or bouncy actions of the child. To overcome all these problems, a smart and safe child rescuing solution is to be provided and this is where the need of IoT comes into the picture. IoT is a classification of unified computing devices of powered and numerical machineries where the persons are as long as with the exclusive identifiers and also it has an capacity to handover the data over a system which does not require person-to-person or human to computer collaboration. IoT is a self-motivated worldwide structure with self-operating abilities that is constructed on the typical and interoperable statement protocols in which the physical and computer-generated aspects have their own characteristics. IoT permits the things to be protected and it should be monitored remotely across there maintain network set-up, forming the chances for the extra direct incorporation among the physical world and also in computer built systems that raises to an extensive diversity of strategies such as heart nursing implants, plug-in calms in sea side regions along with the built-in-sensors. This can be obtained for gathering the beneficial information with the assistance of different prevailing machineries and then the unconventional movement the data among other devices takes place.

Corresponding Author:** ***Keerthipriya, S.
Department of Computer science and Engineering, Sree Sakthi Engineering College, Karamadai, Mettupalayam, India

This results in the generation to the concept of smart and safe child rescue system where technical and scientific knowledge has been applied to understand, plan, execute and to monitor all the needs.

LITERATURE SURVEY

Padhmaloshani, Venkateswarlu M, Jagadeesh M, Sushma P presented a better and reliable solution for this problem. This rescue system uses the high-tech electronics automatic system the block diagram of the hardware set up. Here IR1 infrared sensor is placed near to the open bore well. IR2 and IR3 infrared sensors are connected inside the bore-well. If any movement is detected near to the bore well it will detect by the IR1 sensor and send information to the Arduino Uno controller. Controller will send the alert message through GSM module to the authorized person and display the same message onthe LCD display. Here only we can save the life of the victim before falling down into the bore-well. Then also if child felled down into the bore-well thenIR2 and IR3 sensor will sense the motion in-side the bore well and activate the dcmotor driver. It gives long alarm. This DC motor driver controlling the two motors namely M1 and M2. M1 motor is used to rotate the vertical plate into the horizontal position to catch the child. And stop child further going into the dept. Motor M2 is used to pull up the rotated plate along with the child. After successfully saving the child reset button is provided to bring the system into the original position. This system requires the 5-volt AC voltage supply. That we are proving with the help of adaptor which converts 230-volt AC supply into the 5-volt DC voltage.

Sumathy, A. Monika R. Dhanashree proposed a system which rescues the child from the borewell. The Smartand Safechild Rescue System consists of Temperature sensor (LM35), Gas sensor (mq4), Oxygen tube,Web camera and the clipper. The sensors are under the control of Atmel microcontroller and are attached with the clipper. The clipperis controlled by the DC motor. The hands of the clipperis tied up with the rope of 90cm

andis inserted inside the hole manually. A Web camera (5MP) is fixed in the arm facing the ground through which we can viewin PC and can come to know the status of the child inside the well. Since it is not a night vision camera an LED fixed withit. Once it is inserted the temperature sensor senses the temperature of the environment and shows the result in the LCD and then within a second the gas sensor detects the gas and displays the result in LCD.

Jayasudha. M, M. Saravanan proposed a system, to defense a child who has tumbled into bore well, we have utilized a robotic arm to fix the belt to the child by using servomotor. The picking part of the belt is attached with the robotic arm with gear assembly. By adjusting the knob of the potentiometer, the angle of the robotic arm gets varied. It goes about as an extremely helpful and utilization less device for bringing the kid up within a short span of time. To vision the bore well the robotic system is attached with the web camera. The robotic arm is utilized to securely bring the child out of the borewell.

Dr Prakash Bethapudi presented a system which is very useful to society in saving the lives of children from bore wells. It detects the object or person falling into the bore well with the help of sensors and automatically buzzer starts ringing until someone comes rescue them and stops it, message alert is send to nearby police station, concerned persons along with information to ambulance. The carrier mounted inside the bore well gets activated and pulls the child up in no time.

M RChaitra, Monika P, Sanjana M, Shobha Sindhe SR, Manjula G presented a system that when the switch is pressed, the device will get activated automatically with in a fraction of milliseconds. Immediately the location of the victim will be tracked and messages will be sent to emergency Smart Intelligent Security System for Women contacts. The screaming alarm unit will be activated and will produce siren sound to call out for help. Electric shock is applied to harm the attacker which may help the victim to escape. Live Streaming Video will make to process the situation of the victim using a preferred IP address so that it help to detects the face of the attacker along with the surrounding environment that helps to figure out easily.

METHODOLOGY

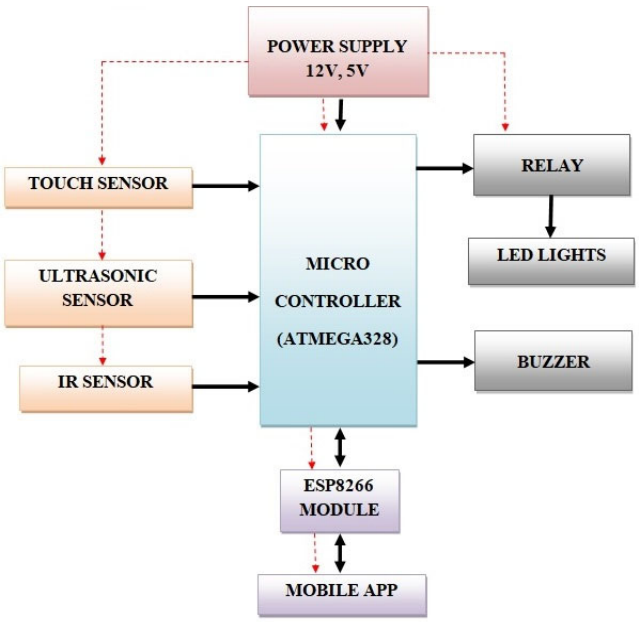
Existing methods

The main purpose of this research is to save the life, child trapped inside the borewell safely. The problems in current existing methods are:

- It takes up to 30 hours to dig the parallel pit 110ft, by the time the child would have died.
- Lack of oxygen inside the borewell.
- Lack of visualization causes the major difficulty during the rescue operation.
- There is no such equipment for rescuing the child which had fallen into the bore well.
- There is no interaction of child inside borewell and the parents.
- Children fall in the Borewell due to the carelessness nature of the people in society.
- The currently available systems are less effective and costly too.
- In most cases reported so far, a parallel hole is dug and then horizontal path is made to reach the child. It is not only a time taking process, but also risky in various ways.

Proposed system

In such accidents normal rescue operations are very complicated because the process is time consuming, requires huge man-power etc. The aim of this project is to provide a better and reliable solution for this problem. This rescue system uses the high-tech electronics automatic system the block diagram of the hardware set up. Here ultrasonic sensor is placed near to the open bore well. Infrared sensors are connected inside the bore-well. If any movement is detected near to the bore well zone, it will detect by the ultrasonic sensor and send information to the Arduino Uno controller. Controller will send the alert message and calls through Esp8266 module to the authorized person and display the same message on the Blynk app display by using IOT. Here only we can save the life of the victim before falling down into the bore-well. Then also if child felled down into the bore-well then IR sensor will sense the motion in-side the bore well and activate the Buzzer. It gives long alarm. This system requires the 5-volt DC voltage supply. That we are proving with the help of transformer which converts 230-volt AC supply into the 5-volt DC voltage.

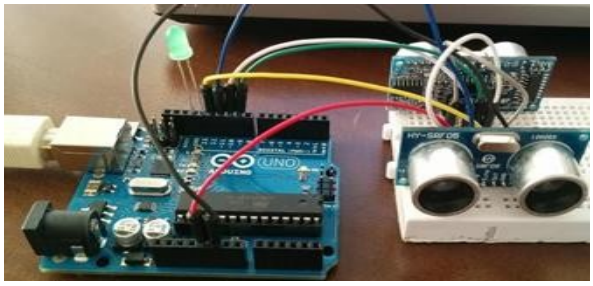


Components and operation

- Microcontroller
- Voltage Transformer
- Diodes
- Resistors
- Light Emitting Diodes (Led)
- Capacitors
- Voltage Regulators
- Relay Module
- Capacitive Touch Sensor
- Infrared Sensor
- Ultrasonic Module

Output

The output of the following project is:



Conclusion

With the tremendous increase in population, the foremost issue which is faced by the society is water scarcity that primes to huge quantity of borewells are being ruined and because of this when children are playing near the borewells they fell into it which results in loss of many innocent kids. The Regular action is to release the child is to pit a crack closer to the bore well, but this reason is tough and also it is dangerous to save a caught child in the borewell and this takes addition alperiod to pick the child from the bore well. To avoid all these things, the borewells has to be properly managed and monitored on regular basis. Currently, there are many ways to rescue the child through digging by using bulldozers and JCB's, but these large vehicles consume a lot of fuel, time and work. To overcome all these issues, a smart solution is required which can be obtained using Internet of Things. This paper goes through various smart ways to solve all the current problems of rescuing the child.

REFERENCES

Kavianand G., K. Gowri Ganesh, P. Karthikeyan, "Smart child rescue system from borewell" (SCRS), Published in: Emerging Trends in Engineering, Technology and Science (ICETETS), International Conference on, 24-26 Feb. 2017

Kurukuti N. M., M. Jinkala, P. Tanjeri, S. R. Dantla and M. Korrapati, "A novel design of systemic system for rescue in bore well accidents", 2016 International Conference on Systemics and Automation for Humanitarian Applications (RAHA), Kollam, 2016, pp. 1-5.doi: 10.1109/RAHA. 2016.7931875.

Raj Manish, P. Chakraborty, G. C. Nandi, Rescue systemics in bore well Environment, Cornell university library 5thJune,2017.

Bourbakis N. and I. Papadakis-Ktistakis ATRC, "Design Ground Bio-inspired Micro-System Structure for Detecting Humans in disastrous region". Wright State University, Dayton, OH 45435 and Technical University of Crete, Greece.10thJune,2017.

Sridhar K. P., C. R. Hema, S. Deepa Published online: "Design of a Wireless Sensor Fusion System to Analyze Conditions Inside Bore Wells". Wireless Pers Commun (2017) 94:1951–1962 DOI 10.1007/s11277-016-3299- 4 on 12 April 2016.

Preedipat Sattayasoonthorn, "Battery Management for Rescue System Operation" 9th July,2017.

Wang Chuanjiang, and Robert Babuska. "Machine Learning Algorithms in Bipedal System Control." Systems, Man, and Cybernetics, Part C: Applications and Reviews, IEEE Transactions on 42, no. 5 (2012): 728- 743.

Palwinder Kaur, Ravinder Kaur, Gurpreet Singh "Pipeline Inspection and Bore well Rescue System", IEEE, Vol 3, No. 4, April 2014.

Saran K., S.Vignesh, Marlon Jones Louis "Bore- well Rescue System" *International Journal of Research Aeronautical*, VOL 1, Issue 4, pg.61-80, April 2014.

Bharathi B., B. Suchitha Samuel "Design and Construction of Rescue System and pipeline inspection Using Zigbee" *International Journal of Scientific Engineering and Research (IJSER),* Volume 1 Issue 1, September 2013.

Nithin G., G. Gautam, G. Venkatachalam and S. Narayana "Design and stimulation of the bore-well rescue system – Advanced Asian Research Publishing Network (ARPN)" *Journal of engineering and applied sciences.*

John Jose pottery, "system for bore well rescue", Amaljothi college of engineering, vol. 10, Jun 2017.

****