

Child Rescue System against Open Borewells

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Abstract— This paper is generally based on the child rescue in the bore well. Nowadays child falls into an abandoned bore well, which is left uncovered and get trapped. Normal operation to rescue the child is to pit a dig nearer to the bore well. That logic is difficult and also risky to rescue the trapped child. It takes extra time to recover the child from the bore well. The mechanical system moves inside the uncontrolled bore well. In these cases normal operation of human rescue is done by using big machines with large manpower involvement. The rescue process to save the human from bore well is a very long and complicated process. It is time taking process and also risky in various ways. So the aim is to prevent the people from falling in ton the bore well .Our Paper reviews and suggests a new design which has a sensor kept at top of bore well hole. It helps to sense the people if they fell inside.

Keywords: Child Rescue System against Open Borewells, Water Scarcity

I. INTRODUCTION

Water scarcity is the major problem faced by the human society. Due to drought and depletion of underground water more bore wells are drilled on the surface of the earth. Due to water scarcity more bore wells are being sunk. In many areas the bore wells are drilled and leaved as it as open without proper covering. This abandoned bore wells have become death pits and started taking many innocent lives especially small children. Now a days falling of peoples in bore wells are increasing due to the carelessness of human beings. The holes dug for the bore wells are deep around 700 feet. In these cases the rescue of peoples from such deepest bore wells is quite challenging. Many times the rescue system for peoples from bore wells may risk the life. The existing system for rescuing the people from bore wells is not only difficult and also very risky to save the trapped human life. A small delay in rescue operation can even cost human life. Even though the necessary rescue operation is taken, many factors such as lack of oxygen, increasing temperature and humidity.

In such depth will be another risk for human life. So far there are many solution but with limitations available for giving relief to such accidents .This child rescue presents a proactive approach to prevent child fatalities at open uncapped bore-wells in India, which is based on communications using Infra-Red signals. When the signal generated by IR sensors, placed two inches below the entrance of bore-well, breaks due to any obstructing object, an alert message is dispatched through GSM and at the same time, a metal plate that is kept a few feet lower in the bore-well closes the bore in order to prevent the object from falling deeper into the well. The solution presented in this paper is a simple and yet easily scalable and highly reliable, utilizing the proven technology of Infra-red signaling.

II. LITERATURE SURVEY

Bore-wells in India have almost eliminated the water problem in all areas (houses, agriculture and industries) in various States. Increasing demand and reduced ground water levels are the main causes to drill bore-wells even deeper and bigger in size over time. The average bore-hole size is 2.5 inches, the size has been increased to 7 inches and in 21st century it is more than 14 inches. The drilling technology available has made no compromise in depth of a bore-well to get water. However there are no such standard rules in India like bore-hole diameter, depth of the bore-well for drilling and sealing the dry bore-wells. In normal cases a truck mounted with driller, drills with a starting diameter of 4.5 inches. The size of the hole is also depends on geological structure of the area. In Rajasthan and Gujarat the diameter can go up to 20 inches starting from 14 inches. In rest of India on an average 8 to 10 inches diameter is used.

Unfortunately some of the illegal bore-wells which are made to save life become threat to the life of children's. The bore wells, which successfully hit the water does not pose any threat because those are completely sealed with casing after installing the motors. Bore-wells which are not successfully hit the water at maximum depths, they are left uncovered and abounded. Such bore wells are called dry or dead borewell, these uncapped bore-wells become threat to the children. There are many incidents filed against bore-well death of children are rising day by day.

Up to now the methods used to save the child, fallen in the bore-well is manual rescue method. In which a big hole is dug beside the bore well up to the depth where the child is stuck. During this process a huge amount of human resources (military, Paramedical, etc.), machinery (JCBs, Tractors, etc.) is used. A small delay in these resource accumulations may reduce chances of saving child alive. If the area beside the bore hole contain rocks below certain depth, this situation becomes very worse if the size of the rock is very big in such cases the whole process is to bere initiated again from new place. In such cases the chances of saving child alive is very low. Whatever may be the case the success ratio depends on lots of factors like availability of machinery, time taken for transportation of machinery to the situation, availability of human resources and mainly the response time of various government organizations. In India according to the NCRB report of 2011 there are 5 average deaths per day due to the abandon bore wells.

III. PROPOSED METHODOLOGY

The technique proposed in this paper prevents a child death when fallen into a bore well, as the technique stops the child at a certain depth in the bore well thereby preventing the child from falling much deeper into the bore well.

A. Demo Point:

- Here PVC pipe will be considered as borewell pipes
- In the demonstration the maximum depth of the borewell will be shown as 3 feet.

B. Incidents Occurred in and Around the Country



Fig. 1: Child rescuing from bore well by digging the parallel hole

1) Description:

Child Rescue System used if a child falls in a bore well. In this method a metal plate or lid is placed at a distance below the entrance of the bore well.

IR technology is efficiently used to identify if a child has fallen in to a bore well. Here, pair of IR sensors is placed in four directions. The IR transmitter and receiver are placed opposite to each other in a line of sight propagation technique. The output of the IR sensors receiver is connected to a comparator. The output of the comparator is given the input pins of the microcontroller. Whenever both the pair of IR sensors line of sight communication is blocked only then the microcontroller sends an SMS via GSM to the child rescue center or to the police station.

If one pair of IR sensors line of sight communication is obstructed then no SMS is sent by microcontroller via GSM. As soon as both the pair of IR sensor is blocked, then depending on the program embedded within the microcontroller the D.C motor connected to a metal lid/plate begins to block the passage of the bore well, thus preventing the child from further falling into the depths of the bore well.

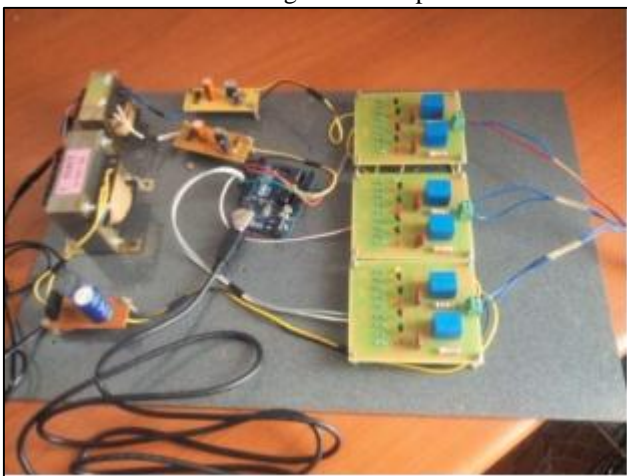


Fig. 2: DC Motor Driver Unit

After at some point, the microcontroller actuates another D.C engine to haul the tyke out of the gap. In the venture exhibit LCD is utilized to show the working of each unit in this undertaking.

Sun based board is utilized so as to charge the battery, Maximum sun oriented vitality is utilized for charging the lead corrosive battery inside the versatile battery charger to keep it charged completely untouched, Sun based board will follow the heading of the sun To continue charging constantly, LDR sensors are utilized to discover the situation of the sun utilizing light power.

C. Parts Used

- ARM7 lpc2148 Microcontroller
- 2 sets of IR-Transmitter and Receiver
- DC Motors
- DC Driver
- Comparator
- LCD
- GSM Module
- Metal plate
- Solar board
- LDR Sensor
- Programming USED
- Embedded C programming
- Keil V4
- Flash Magic Programmer
- Express PCB

IV. END

Human life is valuable. Our shrewd bore well tyke recue framework is a noteworthy endeavor to spare the life of the casualty of bore well mishaps. Other than this, the extraordinary capacity of moving through vertical and slanted funnels makes wide extent of utilization for this machine in assembling enterprises and other significant fields. In the present structure of bore well tyke saver machine is has been made to suit each conceivable circumstance may happen in saving task. We like to finish up with the assistance our task, we ready to safeguard with no harm.

V. FUTURE SCOPE

For undertaking demo concern, we have built up a model module. In future, this undertaking can be taken to the item level. To make this undertaking as easy to use and sturdy, we have to make it minimal and financially savvy. Going further, the majority of the units can be implanted alongside the controller on a solitary board with change in innovation, in this manner diminishing the span of the framework.

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