

Smart Borewell Child Rescue System

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Abstract: An innovative concept proposed in this project is to handle bore well rescue operation. Children often falls down in bore hole which is left uncovered and get trapped. It is difficult as well as risky to rescue trapped child from bore hole. Hence we are proposing a system of designing robots for the rescue of a child in a bore hole. We aid the child by continuous monitoring and supply of necessary items to survive using technical methods. Bore which yielded water and subsequently get trapped inside. To aid in such a life threatening situation we here by propose bore well rescue robot.

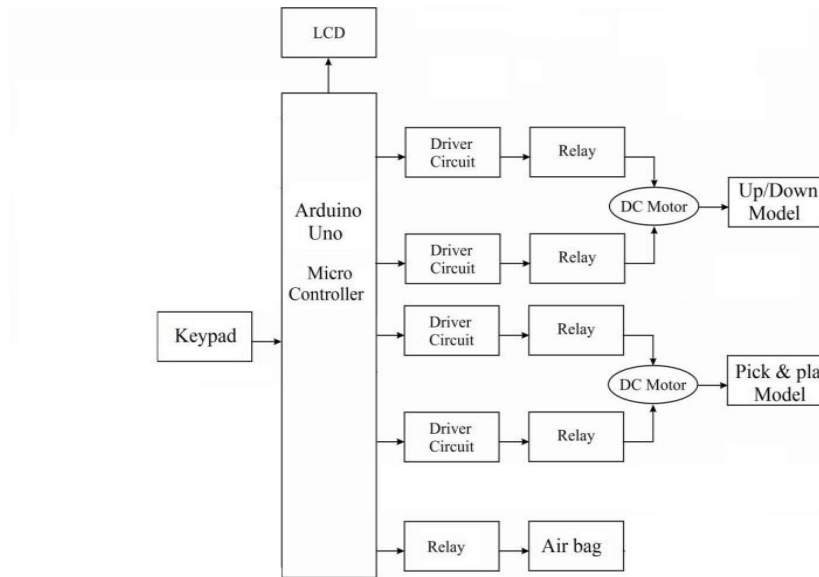
Keywords: Robotic Arm, Dc Metal Gear Motor and Arduino UNO.

I. INTRODUCTION

In order to meet the ever increasing demand for water bore wells are dug. But these are usually left uncovered and children often fall down. Normal rescue operation strategy involves digging a parallel pit to achieve the child and adjacent holes are made to walls of bore well. But these are time consuming and may cost life. A multifunctional, reprogrammable and intelligent manipulator designed to perform a task is a robot. Using a robotic structure it is possible to rescue a child within a short time. Robot for bore well rescue offers solution to this situation. It is fast, economical and safe. It has the facility to monitor trapped child, supply oxygen and provide a supporting platform to lift up the child.

II. PROPOSED SYSTEM

This work is aimed towards the construction and designing of a robotic System to work in borehole rescue operations and to detect faults inside the pipeline. The robot has arms at its front to pick and place the objects. The working mechanism of this projected system is a process of pick and place mechanism, the safety method is dealing with a child life. Then connects the rope to the pulley and the device is sent into the bore well. As the device reaches the child his position can be visible on the monitor with the help of wireless camera along with the device. Based on the position of the child the device will be rotate with the help of camera and DC motor. The device has a gripper to hold the child hand after the grabbing the hand. Lowering another mechanism of vertical rod at end of that having a plate into the bore well. When reaches the child slowly taken down to the child then using push lever at top of the rod, plate be open into horizontal positioned flat stand for child to lift, after ensuring the safety of the child pull the whole device setup slowly outwards from borewell. The rescue process to save the child from bore well is a very long and complicated process. It is time taking process and also risky in various ways. So the aim of the project is to prevent the Children from falling in ton the bore well. Our Paper implies a new design which has a sensor kept at top of bore well hole which helps to sense the child if he fell inside. If the system senses the child the automatic horizontal closure kept at around five feet depth closes and prevents the children from falling beneath it. It is easy to rescue the child from five feet than five hundred feet.



EMBEDDED C

An embedded system is an application that contains at least one programmable computer (typically in the form of a microcontroller, a microprocessor or digital signal processor chip) and which is used by individuals who are, in the main, unaware that the system is computer-based. The C programming language is a popular choice for embedded systems development due to its efficiency, low-level control, and ability to access hardware resources directly. However, not all features of the standard C language are suitable for use in embedded systems, which typically have different requirements and constraints than desktop or server systems. Embedded C is a subset of the C language that is optimized for embedded systems development. It includes a limited set of language features that are suitable for use in embedded systems, such as bitwise operations, pointers, and direct access to hardware resources. Embedded C also includes libraries and functions that are specifically designed for embedded systems, such as those for handling interrupts and timers. When programming in Embedded C, developers must consider the limited resources available on the embedded system and optimize their code for efficiency and speed. This often involves writing code that is closer to the hardware and more optimized for specific tasks than in general-purpose programming.

III. SIMULATION

- **ISIS:** the acronym of Intelligent Schematic Input System. The program allows us to carry out the electric design of the circuit, including all sorts of components such as resistors, coils, capacitors, power supplies, and even microprocessors.
- **ARES:** the acronym of Advanced Routing and Editing Software. It's the tool aimed at the design of printed circuit boards or PCBs, with routing, location and editing functions for electronic components.

Output of simulation Mode 1: Off Condition

The simulation is in an "off" condition, this likely means that the simulation is not currently running or actively generating outputs. In other words, the system or process being simulated is not currently functioning. In a simulation diagram, this might be represented by showing all components as disconnected or inactive, with no flow of inputs or outputs.

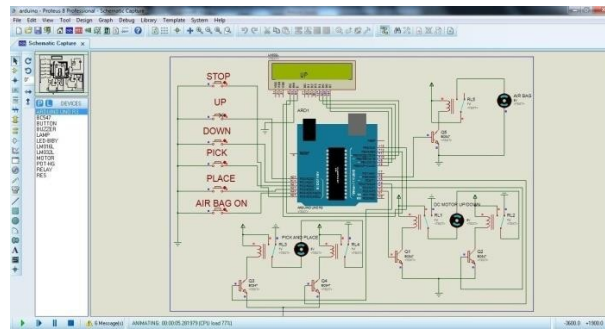


Fig.2.Simulation Output

The flow of the simulation diagram in an airbag on condition shows how the system detects a collision, processes sensor data, and activates the airbag to protect the occupants of the vehicle. The process may involve decision points, such as threshold values for sensor data, and feedback mechanisms to ensure that the airbag is deployed correctly. For example, the simulation diagram for an airbag on condition might depict a collision sensor that detects an impact and sends a signal to the airbag control module. The module then processes the sensor data and sends a signal to activate the airbag.

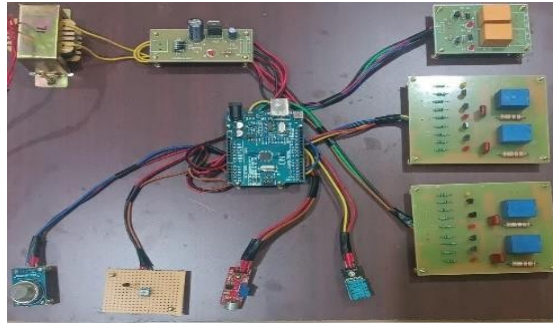


Fig.3.Hardware Output

The Smart Bore well Child Rescue System is a hardware-based system designed to detect and rescue children who fall into bore well. The system typically consists of sensors, a control unit, and a hoist system. The sensors used in the system are generally placed at the opening of the bore well and can detect the presence of a child who has fallen into it. The sensors can detect the weight of the child and send signals to the control unit, which then triggers the hoist system to rescue the child. The control unit is the central processing unit of the system and receives signals from the sensors. Once the presence of a child is detected, the control unit activates the hoist system, which typically consists of a rope and a motor. The motor is used to pull the rope, which is attached to a harness that can be used to lift the child to safety. Overall, the Smart Bore well Child Rescue System is a critical tool in saving the lives of children who fall into bore well. The system's hardware is designed to work quickly and efficiently, ensuring that the child is rescued as soon as possible.

IV.CONCLUSION

In this project, Developed a prototype to rescue children falling in to bore- wells, this implies a new design which placed sensor kept at top of bore-well hole which helps to sense the child if he falls inside. If the device senses the child the automatic moves downwards closure kept at around 3ft depth closes and prevents the children from breathing problems. In future, this paper can be taken to the product level as a project which is easily accessible and user friendly. In further development need to make its small size and cheap cost. In future, most of the units can be connected with embedded system along with the single board controller with change in new technology, then reducing a size of device.

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