

# Smart and Secured Rescue Robot to Trap a Child from Open Borewells

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**Abstract** - A In recent years there has been an increase in the bore well mishaps wherein children fall into open bore wells and it becoming a common tragedy that child fell into the boreholes which are left open and many have took their last breath. A little impediment in the rescue operation of the strucked person can results in the death of a person. To avoid all such disasters we are producing an idea to trap the child from open bore well using robotic setup. The bore well robot is capable of moving inside the well which is manually operated by human and monitored by computer. This project aims to designing a system which is capable of rescuing a child with ease and without causing any discomferts.

**Key Words:** Bore well, Child Rescue system, Raspberry pi

## 1. INTRODUCTION

In current framework, growing water scarcity is the major problem which people come across in day to day life. Small children without spotting the hole dug for the bore-well slip in and get trapped. These accidents are mainly happened due to inattention or playful activities of the child. The occurrence of latest technique provides pragmatic opportunity for new robot power and awareness of new methods of control theory. The presented robot control system can be used for different enlightened robotic applications, thus robots have been very successful at manipulation in simulation and controlled environments. The child fall into open bore-wells and rescue operations almost end with failure. We are developing a robot machine that can take out the trapped body in a systematic way. It will also perform various life saving operations for the suffers such as oxygen supply. It will be a light weight machine that will be setup easily into bore-well and hold the trapped body systematically. In this technology, there will be no requirement of digging hole parallel to the bore-well. The currently available system to save the child are less effective and costly too. Thus the society is in need of a new technique which is more efficient and effective. In most cases reported so far, the digging of hole parallel to the bore-well is not only a time taking process, but also risky in various ways. The advancement in the field of automation along with the mechanical design has great impact on the society. The modern equipment are implemented for various parts of the system, since the system performs a life rescuing activity. The robot has the arm at its front to pick and place the objectives. It has camera that is interfaced with the laptop foe the visual display. The motion of the robot is controlled

through manual controlling. The proposed system is intended to reduce the risk involved during child rescue.

## 2. LITERATURE SURVEY

### 2.1 EXISTING SYSTEM

Nowadays robots are designed to help the human operators in the rescue mission. Rescue team usually follows the parallel pit process to save the child. First the rescue team will find the depth of the child in the bore well by using a rope. Then earth moving vehicles such as rig machines are used to dig the parallel pit next to the bore hole. This process of making holes takes more time.

### 2.2 PROPOSED SYSTEM

The proposed system is to rescue the child from open bore well. Based on the requirements, the system is divided into two sections: 1.Robotic section and 2.Command and monitor section. Robotic section is send inside the bore well. Robotic system consists of Wi-Fi module is to continuously monitor the condition inside the borewell and send these information using IoT technique, Raspberry Pi module as a controller, PI camera to capture the condition,, Motor Driver to control the Robotic arm, Humidity Sensor to measure the moisture content and air temperature and Gas sensor to measure the amount of oxygen present inside the bore well. The information that captured inside the bore well can be transmitted to the Cloud storage through Wi-Fi using the IoT technique.The continuously monitored videos can be obtained from cloud storage is seen through the mobile or system. The data obtained from sensor also send through the Wi-Fi module.

### 3. SYSTEM ARCHITECTURE

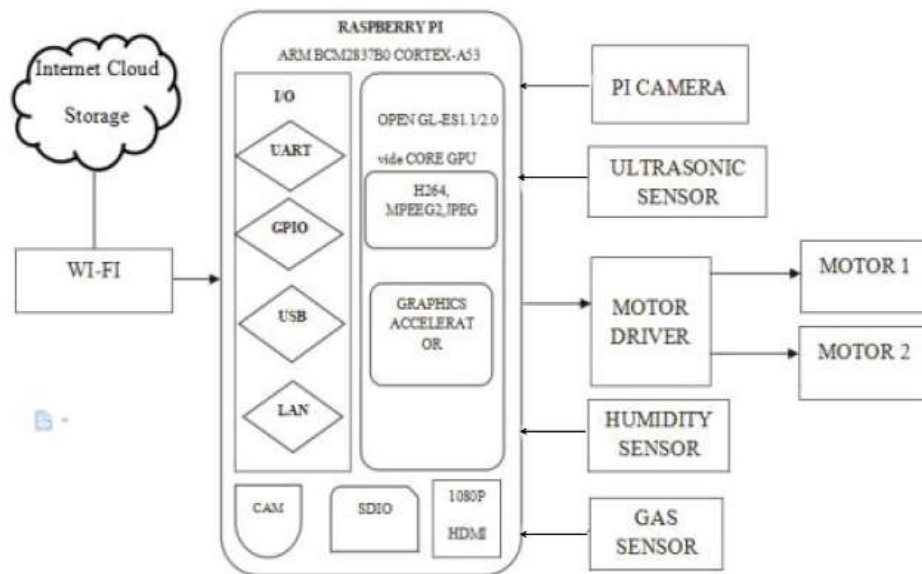


Figure -1: Block diagram of robotic section

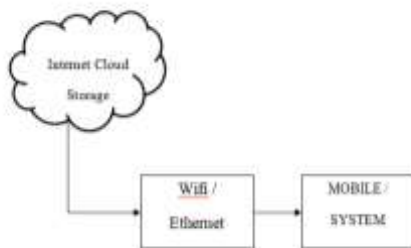


Figure -2: Block diagram of command section

### 4. ADVANTAGES AND DISADVANTAGES

#### Advantages

This system is easier to operate manually.

More flexibility

#### Disadvantage

It is costlier

### 5. CONCLUSIONS

In the above system, three sensors are connected at the output pin of the interfacing device. When the temperature senses the temperature of the child which varied from the set points in the program of an interfacing device, the button 1 will come to the state high which will automatically switch ON the driver circuit to rotate the arm and moved to the position of the detected object in the open bore well.

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