An Intelligent Communication Design For Child Life Protection System From Unsafe Bore Well Area

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Abstract- *Children often fall down in the bore well which have been left uncovered and get trapped .The rescue of this trapped child is not only difficult but also risky .A small delay in the rescue can cost the child his or her life .To lift the child out the narrow confines of the bore well is also not very easy .The child who has suffered trauma of the fall and is confined to a small area where, with a passage of time the sub lay of oxygen is also reduces. Device for bore well rescue offers a solution to these kinds of situations .It is fast, economical and safe. Sometimes the bore well is so deeper that a human cannot enter leaving the victim helpless to inside the bore well.There is no proper rescue technique to rescue victims of such accidents. Moreover this rescue system involves a lot of energy and expensive resources which are not available easily everywhere and also need a big space around the trapped bore.The system is introduces the new design and developing for protecting the child life from the bore well which is in unsafe.The system produces the high alert sound when the child is entering near in bore well using sensor network .The child is move away from the area due to the high sound. The automatic well –hole closer mechanism includes the system for locking the child automatically if they fall.The wireless communication device also introduces in this system for producing the emergency alert for the neighbors and parents which are fixed in child home. The robotic arm can be fixed top of the bore well which is used to catch and pull-up the child for safe his alive.*

Keywords- Sensor network, Automatic locker and wireless emergency alert.

I. INTRODUCTION

In current framework, growing water scarcity is the major Problem whish 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 do 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. Robots have been very successful at manipulation in emulation and controlled environments the child fall in to open bore wells and rescue operations was almost end with failure. We are developing a robot machine that can take out he trapped body in a systematic way. 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 any whole parallel to the bore-well.

The bore wells are left unclosed after identifying that ground water is not abundant at the place. These bore wells in turn have started to take many innocent lives. There is no proper technique to rescue victims of such accidents. So used a morphological analysis, is a method for representing and exploring all the relationship in multidimensional problems. The word morphology means the study of shape and form and a way of creating new forms. The process was developed into a technique for generating solutions. Children often fall down in the bore well which have been left uncovered and get trapped. The rescue of this trapped child is not only difficult but also risky. A small delay in the rescue can cost the child his or her life. To lift the child out the narrow confines of the bore wells is also not very easy. Device for bore well rescue offers a solution to these kinds of situations. It is fast, economical and safe. We are using horizontal slider (closer) and wireless sensor network for protecting the child fall into deep from the bore well.

II. EXISTING SYSTEM

In recent decades, with great strides taken in the field of automation and significant growth in living standards, modern industry has been increasingly inclined to depend on pipelines for raw materials. Some of these pipelines are bore wells dug deep into the ground to obtain underground water. Once these bore wells run dry; ideally, they should be sealed. Due to negligence, some of these wells are not appropriately sealed, consequently leading to children falling in them unwittingly. The rescue of the child is greatly hampered due to lack of knowledge of the child's Condition. The urgency of the rescue depends on the condition of the child and it is paramount to have information regarding the child. Robotics is

an area which can be explored to achieve this objective. In-pipe robots are currently being used to inspect pipelines but they are still in the development stage. An efficiently robot can be used to accurately determine the child's status and hence save capital and manpower. This work illustrates an innovative method to assess the condition of the victim by analyzing various details like the depth at which the child is stuck, detection of harmful gases present, temperature, humidity conditions and live feed of the victim using an in-pipe robot.

III. DRAWBACKS OF EXISTING SYSTEM

The existing system is designed for pull-up the child after fall down to bore-well end point. There is no child locker system. Most of the system is failure and child is not protecting safely. Cost is very high due to more sensor networks and protection process.

IV. PROPOSED SYSTEM

The proposed system is to design and developing the technological advancement of producing the high alert sound when the child is entering near in bore well using sensor network. The child is move away from the area due to the high sound. The automatic well-hole closer (slider) mechanism also includes the system for locking the child automatically if they fall. The wireless communication device also introduces in this system for producing the emergency alert for the neighbors and parents which are fixed in child home. Additionally the robotic arm can be used for pull up the child from bore well.

A.NUVOTON MICROCONTROLLER

Generally microcontrollers have a CPU, Memory, Addressing Circuits, Interrupt handling circuits an internal UART, Ports, timers. The microcontroller models very in data sizes from 4 to 32 bits. Four bit units are produced in huge volumes for very simple applications. 8-bit access is more versatile then others 16-32 bit words are used in high speed application in signal processing.

B.IR SENSOR

1. IR TRANSMITTINGSENSOR (LED)

Infrared (IR) light is electromagnetic radiation with a wavelength between 0.7 and 300 micrometers, which equates to a frequency range between approximately 1 and 430 THz.IR wavelengths are longer than that of visible light , but shorter than that of terahertz radiation microwaves. Bright

sunlight provides an irradiance of just over 1 kilowatt per square meter at sea level. Of this energy, 527 watts is infrared radiation, 445 watts is visible light, and 32 watts is ultraviolet radiation.

2 .IR RECEIVING SENSOR (PHOTO DIODE)

A photodiode is a type of photo detector capable of converting light into either current or voltage, depending upon the mode of operation. Photodiodes are similar to regular semiconductor diodes except that they may be either exposed(to detect vacuum UV or X-rays) or packaged with a window or optical fiber connection to allow light to reach the sensitive part of the device. Many diodes designed for use specifically as a photodiode will also use a PIN junction rather than the typical PN junction.

C.H-BRIDGE MOTOR DRIVER(IC L293D)

The L293 and L293D are quadruple high-current half-H drivers. The L293 is designed to provide bidirectional drive currents of up 1 A at voltage from 4.5 V to 36 V. The L293D is designed to provide bidirectional drive currents of up to 600-mA at voltage from 4.5 V to 36 V.

Both devices are designed to drive inductive loads such as relays, solenoids, dc and bipolar stepping motors, as well as other high-current/high-voltage loads in positive-supply applications. All inputs are TTL compatible. Each output is a complete totem-pole drive circuit, with a Darlington transistor sink and a pseudo-Darlington source. Drivers are enabled in pairs, with drivers 1 and 2enabled by 1, 2EN and drivers 3 and 4 enabled by 3,4EN. When an enable input is high , the associated drivers are enabled and their outputs are active and in phase with their inputs. When the enable input is low, those drivers are disabled and their outputs are off and in the high-impedance state. With the proper data inputs, each pair of drivers forms a full-H (or bridge) reversible drive suitable for solenoid or motor applications. On the L293, external high-speed output clamp diodes should be used for inductive transient suppression. A VCC1 terminal, separate from VCC2,is provided for the logic inputs to minimize device power dissipation. The L293 and L293D are characterized for operation from 0C to 70 C

V. SYSTEM ARCHITECTURE

1. BORE WELL UNIT

The bore well unit consists of IR sensor networks, Nuvoton microcontroller, H-bridge, robotic arm, HT12E encoder, 434MHz RF transmitter, buzzer, siren generator,

relay and +5V/+12V regulated power supply unit. The one set of IR (Infrared) sensor module (obstacle sensor) fixed near in bore well unit which is used to sensing the any human or object entering bore-well. The output of the sensor is applied to the input of the relay switching unit directly. The siren generator is attached with relay switching unit and it generates the high siren sound when the relay is energized. Another IR sensor module fixed inside of the bore-well top. The sensor produces the electrical output when any object or child fall down into bore-well. The output of the sensor is applied to the input of the microcontroller through transistor driver. The transistor driver is used to convert the electrical signal into logical data's (0 or 1). The transistor driver produces the logical data '1'when the sensor output is nil. The transistor driver produces the logical data '0'when it receive the sensor output. The microcontroller enables the horizontal closer for lock the child on top (one or two feet's) through H-bridge driver when it receive the logical data'0'. The controller communicates the information about the child fall down to home or neighbor through wireless communication device such as RF434 transmitter. The RF 434 MHz transmitter connected with controller through HT12E encoder. The HT12E encoder is used to convert the serial data's from the controller to parallel data's for communication. The +5V regulated power supply unit is used for controller and sensor network operation. The +12V regulated power supply unit is used for robotic arm operation additionally.

2. HOME UNIT

This unit consists of RF434 MHz receiver, HT12D, buzzer and +5V power supply unit. The RF434 MHz receiver is used to receive the signal from transmitter and it applied to the input of the HT12D decoder. The HT12D decoder is used to convert the parallel data's into serial data's and also activates the buzzer sound. The +5V power supply unit is used for receiver unit operation.
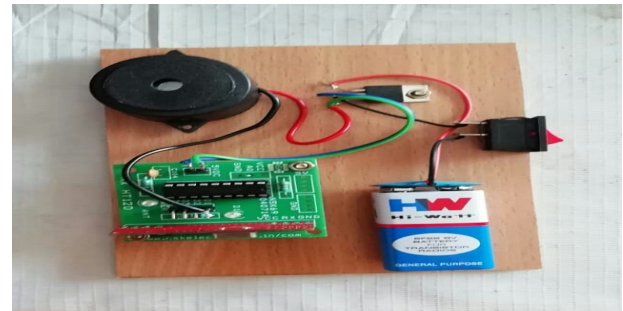
VI. CONCLUSION

Human life is precious. Our smart bore well child rescue system is asignificant attempt to the life of the victim of the bore well accidents. Besides this, the unique capability of climbing through vertical and inclined robe makes wide scope of application for this machine in manufacturing industrial and other relevant fields. In the current design of bore well child saver machine, it has been made to suit every possible situation may occur in rescuing operation. We like to conclude with the help of our project, we are able to rescue without any damage

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