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Smart Rescue System Using GSM

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Abstract: A technique for rescue task in bore well environment has been proposed. India is facing a distressed cruel situation where in the previous years a number of child deaths have been reported falling in the bore well. As the diameter of the bore well is quiet narrow for any adult person and the lights goes dark inside it, the rescue task in those situations is a challenging task. Here we are proposing a robotic system which will attach a harness to the child using pneumatic arms for picking up. A teleconferencing system will also be attached to the robot for communicating with the child.

Keywords: GSM Technology, Robot

I. INTRODUCTION

A technique for rescue task in bore well environment has been proposed. India is facing a distressed cruel situation where in the previous years a number of child deaths have been reported falling in the bore well. As the diameter of the bore well is quiet narrow for any adult person and the lights goes dark inside it, the rescue task in those situations is a challenging task. Here we are proposing a robotic system which will attach a harness to the child using pneumatic arms for picking up. A teleconferencing system will also be attached to the robot for communicating with the child possibility of injuries to the body of the subject during the rescue operation. Also, the body may trap further in the debris and the crisis deepens even more means death. In most cases, we rely on some make shift arrangements. This does not assure us of any long term solution. In such methods some kind of hooks are employed to hold the sufferers clothes and body. This may cause wounds on the body of the subject. The successive technique involves manual work. It is not only a time taking process, but also risky in various ways. The advent of new high-speed technology and the growing computer Capacity provided realistic opportunity for new robot controls. Recently many accidents occurred in India. Forty five deaths of children have been reported in the country since September 2009, from that we have only nineteen with the proof of a newspaper After studying all the cases, we found a solution to do, which results a robotic machine which can go through the trapped bore well without any support.

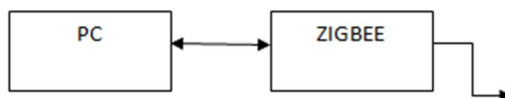
II. INCIDENTS OCCURRED IN AND AROUND THE COUNTRY

PLACES	YEAR	AGE
Jodhpur	July, 2016	18 months
Alwar	Oct,2016	6 year
Hyderabad	Feb, 2016	3 year
Karnataka	Aug, 2014	6 year
Bhavnagar	May,2014	3 year
Vellore	April,2015	3 year
Tiruvannamalai	April,2014	18 months

III. RESCUE OPERATION

The entire system is controlled by PC. It includes two sections, they are

A. Transmitter section



FIG(A): ZIGBEE TRANSMITTER

B. Receiver section

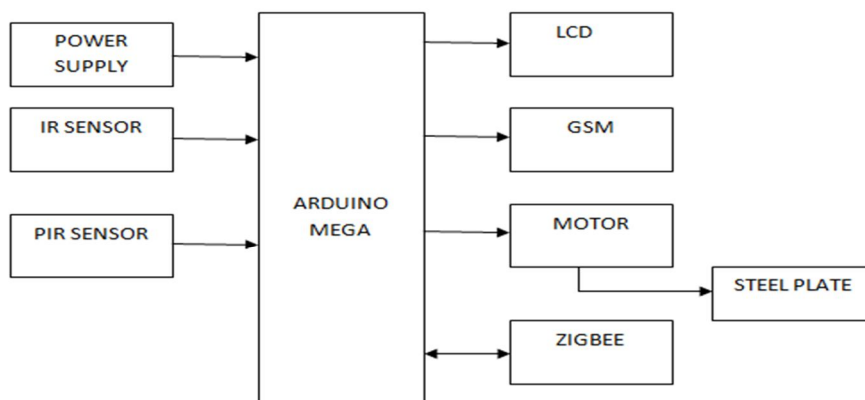
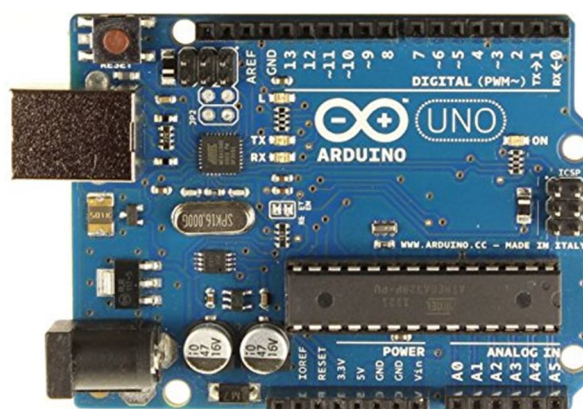


FIG (B): ZIGBEE RECEIVER

IV. COMPONENTS USED

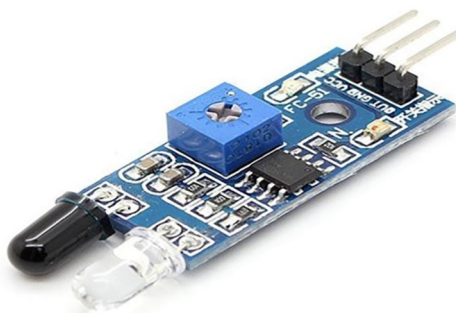
A. Arduino



The elite microchip 8-bit AVR RISC based microcontroller joins 32KB ISP streak memory with read and compose capacities, 1KB EEPROM, 2KB SRAM, 23 universally useful I/O pins, 32 broadly useful registers, 3 adaptable clocks/counters with look at mode, serial programmable USART, programmable guard dog clock with inward oscillator and five programming selectable power sparing modes. It works between 1.8v to 5.5v.

By executing powerful instructions in a single clock cycle, the device achieves throughputs approaching 1MIPS per MHz, balancing power consumption and processing speed.

B. IR Sensor



An Infrared sensor is an electronic gadget which detects a few parts of the environment. These latent IR sensor measures just infrared radiation, instead of emanating it. The locator is essentially an IR photodiode which is touchy to IR light of a similar wavelength. The working voltage ranges from 3.3v to 5v.

C. PIR Sensor



An individual PIR sensor detects changes in the amount of infrared radiation impinging upon it, which varies depending on the temperature and surface characteristics of the objects in front of the sensor.^[2] When an object, such as a human, passes in front of the background, such as a wall, the temperature at that point in the sensor's field of view will rise from room temperature to body temperature, and then back again. The sensor converts the resulting change in the incoming infrared radiation into a change in the output voltage, and this triggers the detection. Objects of similar temperature but different surface characteristics may also have a different infrared emission pattern, and thus moving them with respect to the background may trigger the detector as well.

D. ZIGBEE



Zigbee is a low-cost, low-power, wireless mesh network standard targeted at battery-powered devices in wireless control and monitoring applications. Zigbee delivers low-latency communication. Zigbee chips are typically integrated with radios and with microcontrollers. Zigbee operates in the industrial, scientific and medical (ISM) radio bands: 2.4 GHz in most jurisdictions worldwide; though some devices also use 784 MHz in China, 868 MHz in Europe and 915 MHz in the USA and Australia, however even those regions and countries still use 2.4 GHz for most commercial Zigbee devices for home use. Data rates vary from 20 kbit/s (868 MHz band) to 250 kbit/s (2.4 GHz band).

E. GSM



A GSM inferred named PCS-1990 appeared with late section of north America in the GSM advertise. Presently the acronym GSM is "Worldwide SYSTEM FOR MOBILLE COMMUNICATION ". Since it is existed in the `continent the stage 1 GSM-900 was the principal GSM framework initially produced for just voice and it works in the recurrence band of 900 MHZ, at that point in the year 1995 stage 2 was advanced the contained copy, video, information, correspondence benefits alongside the voice. Later GSM 1800 and 1900 presented utilizing the PCS recurrence 1800 MHZ. GSM comprises of three noteworthy subsystems.

- 1) Base Station Subsystem
- 2) Network Switching Subsystem
- 3) Operation support sub system

The various Accessing Techniques used by GSM are

- 1) Frequency division multiplexing
- 2) TDMA, FDMA combination

The outstanding feature of GSM is the subscriber identity module. This is a memory device that store information like the subscriber identification number, the network where the subscriber is empowered to the service.

The second outstanding feature of GSM is air privacy, which is supported by the system. The privacy is attained by the encrypting the digital bit stream, covered by a GSM transmitter, with a specified secret cryptography key that is only known to cellular carrier.

F. LCD



A Liquid Crystal Display (LCD) is a flat panel display or other electronically modulated optical device that uses the light modulating properties of liquid crystal. Liquid crystals does not emits light directly, images in colour or monochrome. Here we are using the 16*2 LCD display.

V. WORKING

The IR sensor is enacted until the point that cover is shut. In the event that IR sensor is initiated then a message is sent to the proprietor's portable through GSM as to close the top. PIR sensor detects the occasions, if PIR sensor is initiated then we come to realize that some individual is there at the gap else it will be in a relentless state. Here we are utilizing the Zigbee correspondence to screen the drag gap. To some profundity of 15 feet a steel plate is masterminded such that safeguarding a kid at 15 feet is simpler than to protect a tyke who is at some 100's of feet. Borehole robot comprises of 3 wheels with elastic hold for which engines are associated and these wheels have spring suspension too. So that, the wheels will correct fit to the dividers of the opening which make the robot to move inside down with no sliding and Robot comprises and comprising of two arms which is utilized to get the infant from the borehole.

VI. FUTURE SCOPE

In the close coming future this procedure will progress as far as speedier rescue. In this proposed strategy we are simply utilizing a ZIGBEE innovation through which we are protecting the tyke in the drag spring up to a littler degree let it say up to a separation of 10-20 meters. In the future there may be a possibility of safeguarding a youngster through GSM innovation (i. e) the individual can save the kid from an exceptionally bigger separation from the area of bore well.

VII. CONCLUSION

A mechanical structure for protect apply autonomy in bore-well condition has been proposed here. Profoundly watching those episodes and taking a gander at the present conditions we feel that we have to grow such system for sparing those blameless lives. Likewise there is a radical new research territory pausing ahead us which manages loads of difficulties identifying with mapping in obscure condition, ongoing teleoperation in low lighting conditions, arm control framework. Instead of the specialized advancement we would be profoundly fulfilled in the event that it can satisfy the most essential part of the task, which is to spare an existence.

REFERENCES

- [1] https://www.researchgate.net/publication/262974368_Rescue_Robotics_in_Bore_well_Environment
- [2] www.irjet.net/archives/V4/i3/IRJET-V4I369.pdf
- [3] <https://www.scribd.com/document/345709160/IRJET-Smart-bore-well-child-rescue-system>

BIBLIOGRAPHY



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