RECLAIMING ROBOT USING RASPBERRY PI

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ABSTRACT:
In India, kids falling into bore well (or) pit has turned into a typical mishap. Numerous lives have been lost in protecting task of the kids which incorporate the two s who had fell in the pit and individual who hazard life in the activity of saving those kids. The goal of this venture is to structure an automated arm which is customized and constrained by Raspberry Pi SOC which helps in protecting of kid from the pit without taking a chance with any human life. This robot arm has an appended camera for having a live visual of the unfortunate casualty inside the drag well. This automated arm is constrained by PC through GSM, LTE, or WCDMA

INTRODUCTION:
A quicker, practical and more secure approach to safeguard a child from the pit is by utilizing a robot for bore well salvage. It is outfitted with remote camera to screen the caught child which additionally helps in lifting the child from the pit. This mechanical arm has a gripper and engine to hold and pick the child. This framework is structured such that I can without much of a stretch salvage the kid from the pit with less hazard and time. Live gushing of the tyke is made conceivable with cameras and a high goals TV screen. The whole robo weight less with the goal that it can go in any sort of bore well pipe and spare the tyke's life.

EXISTING SYSTEM:
The fundamental motivation behind this venture is to make it conceivable to safeguard a kid tumble from the drag well with no damage. This objective is obtained by controlling a robo arm to pick the kid from the drag well which is constrained by the individual from outside. In existing framework, a major opening is uncovered adjacent to the drag well to the profundity where the tyke is trapped. A little postponement in this assets collection may decrease the odds of sparing tyke alive. In the event that the territory adjacent to the drag gap contains shakes underneath certain profundity, in such cases the opportunity of sparing kid alive is low. Absence of oxygen inside the drag well and absence of light sources causes the real trouble amid the salvage task. There is no such

extraordinary hardware for safeguarding the tyke caught inside the drag well. There is no appropriate strategy to safeguard casualties of such mishaps. At the point when the nearby courses of action don’t work, armed force is brought in. By and large revealed up until this point, a parallel gap is uncovered and afterward an even way is made to reach to the subject's body. In India as indicated by the NCRB report of 2011 there are 5 normal passing for every day in the permit bore wells. At present there is no appropriate answer for this issue; in this paper the model of a robot arm which can be utilized for salvage task is clarified.

PROJECT DESCRIPTION:
The framework is isolated into two separate units, one is Transmitter (controller) unit and another is Receiver (Robot) unit. The unit which is inside the drag well is constrained by the keypad controller. Camera is associated alongside the robot to have a constant visual of the occasion.

![Fig.1. Block diagram for Reclaiming Robot](image-url)

Amid the salvage activity the robot setup is sent to the drag well till the unfortunate casualty is found. These development signs to the robot is transmitted and controlled through controller setup(PC). These procedures are checked with assistance of camera. The camera alongside high power Light Emitting Diode (LED) burn is given to imagine and screen the kid.
development within borewell in a reasonable way. The entire framework has been constrained by Raspberry pi and the administrator utilizing keypad controller. Here, robot arm can is utilized to recoup the tyke with no damage The vertical development and left and right development of the robot is constrained by Stepper engine since every one of the activities are constrained by this unit it is known as Transmitter (controller) Unit. At last the general procedure is observed with the assistance of PC show unit

**DC MOTOR:**
A DC engine utilizes electrical vitality to create mechanical energy, in all respects regularly through the association of attractive fields and flow conveying conduits. The invert process, producing electrical vitality from mechanical vitality, is accomplished by an alternator, generator or dynamo. Many types of electric engines can be kept running as generators, and vice versa. The contribution of a DC engine is current/voltage and its output is torque (speed).

![Fig.3. Simple DC motor circuit](image)

**MOTOR DRIVER:**
It deals with the idea of H-connect. H-connect is a circuit which enables the voltage to be flown in either heading. As you most likely are aware voltage need to alter its course to almost certainly turn the engine in clockwise or anticlockwise bearing. Hence H-connect IC are perfect for driving a DC motor. In a solitary L293D chip there are two h-Bridge circuit inside the IC which can pivot two dc engine freely. Due its size it is especially utilized in mechanical application for controlling DC engines.

![Fig.4. Simple motor Driver circuit](image)

**RASPBERRY PI 3 MODEL B (LATEST VERSION):**
The Raspberry Pi 3 Model B+ is the most recent item in the Raspberry Pi 3 territory, bragging a 64-bit quad center processor running at 1.4GHz, double band 2.4GHz and 5GHz remote LAN, Bluetooth 4.2/BLE, quicker Ethernet, and PoE capacity by means of a different PoE HAT The dualband remote LAN accompanies measured consistence confirmation, enabling the load up to be planned into final results with essentially diminished remote LAN consistence testing, improving both expense and time to showcase. The greatest change that has been authorized with the Raspberry Pi 3 is a move up to a cutting edge primary processor and improved network with Bluetooth Low Energy (BLE) and BCM43143 Wi-Fi ready. Moreover, the Raspberry Pi 3 has improved power the board, with an overhauled exchanged power source up to 2.5 Amps, to help all the more dominant outer USB gadgets.

**SPECIFICATIONS OF RASPBERRY PI MODELS:**

![Fig.5. Tabulation of Raspberry pi](image)

**WIRELESS CAMERA:**
The camera is with 1.2GHZ, with Audio and CMOS and recipient unit with manual recurrence change. This discount item is now well known with China Tronic clients on account of steady high caliber.  
- Linear Transmission Distance: 50-100m  
- Transmission Signal: Audio, Video  
- Receiving Signal: Audio, Video

![Fig.2. Wireless Camera](image)
COMPONENTS OF RASPBERRY PI 3 BOARD:

Manufactured explicitly for the new Pi 3, the Broadcom BCM2835 framework on-chip (SOC) incorporates four elite ARM Cortex-A53 preparing centers running at 1.2GHz with 32kB Level 1 and 512kB Level 2 store memory, a VideoCore IV illustrations processor, and is connected to a 1GB LPDDR2 memory module on the back of the board. The Raspberry Pi 3 has the equivalent SMSC LAN9514 chip as its forerunner, the Raspberry Pi 2, including 10/100 Ethernet availability and four USB channels to the board. As previously, the SMSC chip associates with the SoC by means of a solitary USB channel, going about as a USB-to-Ethernet connector and USB center point. The Raspberry Pi 3 includes a similar 40-stick broadly useful information yield (GPIO) header as every one of the Pis returning to the Model B+ and Model A+. Any current GPIO equipment will work without adjustment; the main change is a change to which UART is uncovered on the GPIO's pins, yet that is dealt with inside by the working framework. The GPIO connector has various distinctive kinds of association:

- True GPIO (General Purpose Input Output) sticks that you can use to turn LEDs on and off and so forth.
- I2C interface sticks that enable you to associate equipment modules with only two control pins.
- SPI interface with SPI gadgets, a comparative idea to I2C yet utilizes an alternate standard.
- Serial Rx and Tx pins for correspondence with sequential peripherals. GPIO pins can be utilized as both computerized yields and advanced sources of info.
- Output: turn a specific stick HIGH or LOW. Setting it HIGH sets it to 3.3V; setting it LOW sets it to 0V.
- Input: recognize the stick being at HIGH or LOW we can associate switches and basic sensors to a stick and check whether it is open or shut (that is, enacted or not). There's no compelling reason to interface an outside reception apparatus to the Raspberry Pi 3. Its radios are associated with this chip interface and outside reception apparatus to the solitary USB channel, going about as a USB-to-Ethernet connector and USB center point. The Raspberry Pi 3 includes a similar 40-stick broadly useful information yield (GPIO) header as every one of the Pis returning to the Model B+ and Model A+. Any current GPIO equipment will work without adjustment; the main change is a change to which UART is uncovered on the GPIO's pins, yet that is dealt with inside by the working framework. The GPIO connector has various distinctive kinds of association:

**WIFI**

WIFI is an innovation that utilizes radio waves to give arrangements availability. A WIFI association is built up utilizing a remote connector to make hotspots - zones in the region of a remote switch that are associated with the system and enable clients to get to web administrations. When arranged, WIFI gives remote availability to your gadgets by transmitting frequencies between 2.4GHz - 5GHz, in view of the measure of information on the system. Remote innovation has generally spread of late and you can go anyplace; at home, at work, in libraries, schools, airplane terminals, lodgings and even in certain eateries. Remote systems administration is referred to as WIFI or 802.11 systems administration as it covers the IEEE 802.11 innovations. The significant favorable position of WIFI is that it is good with pretty much every working framework, amusement gadget, and propelled printer. WIFI is a curtailed term. Indeed, even the individuals who do don't generally recognize a big motivator for WIFI. There are various hypotheses about what the term implies, however the most generally acknowledged definition for the term in the tech network is Wireless Fidelity. Like cell phones, a WIFI organize makes utilization of radio waves to transmit data over a system. The PC should incorporate a remote connector that will make an interpretation of information sent into a radio flag. This equivalent flag will be transmitted, by means of a receiving wire, to a decoder known as the switch. Once decoded, the information will be sent to the Internet through a wired Ethernet association. As the remote system functions as a two-way traffic, the information got from the web will likewise go through the switch to be coded into a radio flag that will be gotten by the PC’s remote connector. A remote system will transmit at a recurrence dimension of 2.4 GHz or 5GHz to adjust to the measure of information that is being sent by the client. The 802.11 systems administration norms will fairly fluctuate depending on the most part for the client's needs.

<table>
<thead>
<tr>
<th>IEEE Standard</th>
<th>RF Used</th>
<th>Spread Spectrum</th>
<th>Data Rate (in Mbps)</th>
</tr>
</thead>
<tbody>
<tr>
<td>802.11</td>
<td>2.4GHz</td>
<td>DSSS</td>
<td>1 or 2</td>
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<tr>
<td>802.11a</td>
<td>5GHz</td>
<td>OFDM</td>
<td>54</td>
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<tr>
<td>802.11b</td>
<td>2.4GHz</td>
<td>DSSS</td>
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<td>802.11g</td>
<td>2.4GHz</td>
<td>DSSS</td>
<td>54</td>
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<tr>
<td>802.11n</td>
<td>2.4/5GHz</td>
<td>OFDM</td>
<td>600 (theoretical)</td>
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CONCLUSION:
A great deal of lives have been lost because of falling in the drag well since it includes burrowing a pit adjacent to a drag well which is a tedious procedure. The proposed framework is to beat every one of these challenges. This venture is utilized to lessen human endeavors for saving tasks from bore well. It performs salvage activities in exceptionally less time when contrasted with conventional techniques. In this way, it has been structured remembering the whole deterrent that may emerge amid the activity. We like to close with the assistance of my exploration venture I am ready to save with no harm.

FUTURE SCOPE:
In future we can utilize this venture in a few applications by adding extra segments to this undertaking.

1. By associating temperature sensor to the robot we can get the temperature of perilous zones in PC itself as opposed to sending human to there and confronting issues at field we can send robot to there and sensor will identify the temperature and it offers data to the small scale controller and miniaturized scale controller gives the data to the handset from that we can get the information at pc side.
2. By associating smoke sensor to the robot we can get the data related convergence of smoke or gases in particular field's for example (coal mines, perilous zones, and so forth). Sensor sense the data and it provide for the miniaturized scale controller and it provides for the handset and from that we get the data in PC.

REFERENCES: