

IV. PROPOSED SYSTEM

In this paper deals with design and implementation of Smart Borewell child rescue system from open borewell using the ESP32S. This should be work as a control module which consists of camera module, motor driver, DC motor, Sensors, Relay and control switches also. Before implementation the first step will be able to identify the child before falling into the borewell. Using Ultrasonic sensor, we measure distance of tapped child from borewell. After the child falls into the borewell, the next step is to locate the child him or her. Initially, we will collect datasets such as facial emotions capturing image using the camera module. It will determine and monitor status of the child whether or not. If the child is danger a tele-conferencing system will also be add to communicating with the child to keep the children quiet. Then the temperature of the child is determined by using temperature sensor DH11 type threshold value is 50 degrees Celsius and verify the child is alive or not. The mobile application displays the status condition of the child by continues monitoring. This paper mainly deals with the design of robotic arm is controlled by the motor driver. One Dc motor fixed in the top of rescue system will control the rope movement like up and down motion. The picking part of the belt is attached with the robotic arm with gear assembly. Another motor fixed inside the arm used to open and close the robotic arm. Additionally robotic gripper will attach rescue system holds the child tightly and takes them out safely. Chest harness for lifting a child from a bore well simplifies the process while ensuring safety and effectiveness. Primarily revolving around Efficiency and Safety, Ease of Lifting, Precision and Control. Overall, the use of a robotic arm in this scenario streamlines the rescue process, reduces the risk of injury to both the child and the rescuers, and improves the chances of a successful outcome. Further we can supply Oxygen. Also, we can gain a better understanding of the borehole. This will enable us to perceive the child's location and position as well as detect any faults in the pipeline. The entire system is manually controlled by the user.

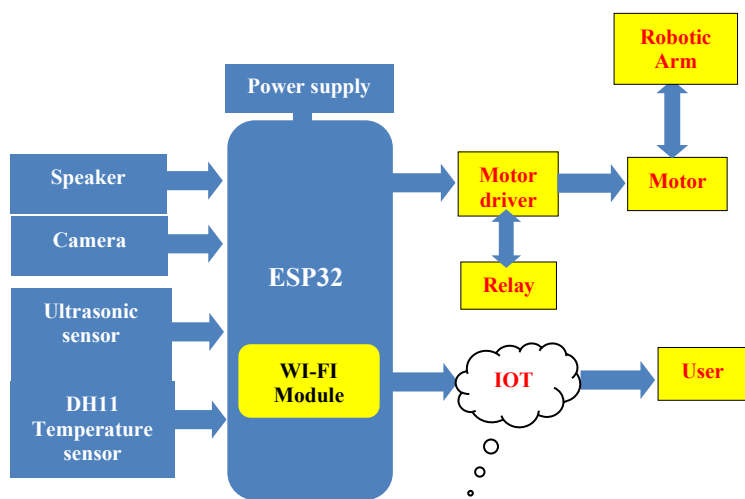
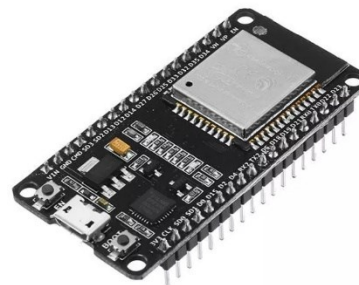


FIG 3. Block diagram of the system

V. HARDWARE DETAILS

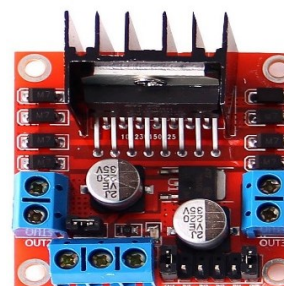
A. Node MCU ESP32

This is the NodeMCU development board based on ESP32, features WiFi+Bluetooth connectivity, onboard CP2102 and keys. There are two power pins: the VIN pin and the 3V3 pin. The VIN pin can be used to directly power the ESP32 and its peripherals, if you have a regulated 5V power supply. The 3V3 pin is the output from the on-board voltage regulator; you can get up to 600mA from it. GND is the ground pin.



B. Motor driver

Motor driver is used to control motion of a motor and its direction by feeding current accordingly. Output of a motor driver is in digital form so it uses PWM (Pulse Width Modulation) to control speed of a motor. Motor Driver are basically current amplifiers followed by input signals.



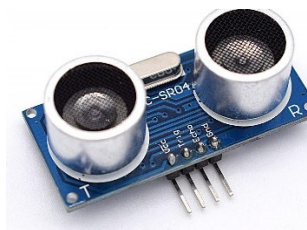
C. Dc Motor

The electric motor activity relies upon the straightforward electromagnetism. A Current passing on conductor makes an attractive field when it is in the external attractive field, it will experience a power relating to the current in the conductor and to the nature of outside attractive field. In the magnet the opposite boundary (north and south) will draw in and such furthest point (north and north, south and south) putdown. The interior arrangement of the DC motor is planned to load the attractive correspondence between a current-0 passing on conductor and an outside attractive field to make rotational movement.



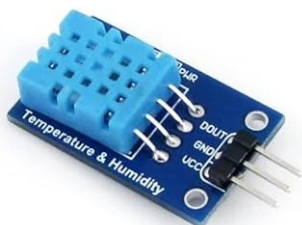
D. Ultrasonic sensor

An ultrasonic sensor is an electronic device that measures the distance of a target object by emitting ultrasonic sound waves and converts the reflected sound into an electrical signal. Ultrasonic waves travel faster than the speed of audible sound.



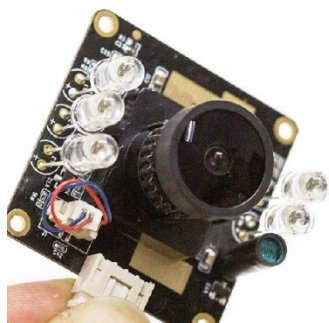
E. Temperature sensor

A temperature sensor is a device that detects and measures hotness and coolness and converts it into an electrical signal. There are many different types of temperature sensors. The DHT11 is a basic, ultra-low-cost digital temperature and humidity sensor. It uses a capacitive humidity sensor and a thermistor to measure the surrounding air and spits out a digital signal on the data pin.



F. Night vision Camera

As the drag well condition is a dull domain the robot will have lights which will give enough lighting conditions to the activity of the robot. The entire situation will be feed as live through the correspondence module which will distribute pictures and furthermore recordings from the camera of the robot. 1080P Day & Night Vision USB Camera Module, 2MP Automatic IR-Cut Switching All-Day Image USB2.0 Webcam with IR LED; FOV (D/H/V) on 1/2.7" Cam,



G. Arduino Software (IDE)

The Arduino Software (IDE) - contain a text editor for scripting code, a message area, a text console, a toolbar with buttons for common functions and a series of menus. It bonds to the Arduino and Genuino hardware to upload

programs and communicate with them. Programs written using Arduino Software (IDE) are called sketches. These sketches are written in the text editor and are saved with the file extension.in. The editor has features for cutting/pasting and for searching/replacing text. T



H. Blynk

Blynk is an IoT platform for iOS or Android smartphones that is used to control Arduino, Raspberry Pi and NodeMCU via the Internet. Configuration of mobile UI during prototyping and production stages.



VI. CONCLUSION

Human life is precious. Our proposed system is very useful to society in saving the lives of children from falling into borewell. In the past 15 years, lots of lives had been lost by falling in to the bore well because digging a pit beside the borewell is very tedious and time-consuming process. The Robotic arm will pick the belt and fix it to the child appropriately. It additionally incorporates web camera for video surveillance. These robots are lifesaving machine by using, ESP32S Motors, Arms, Gears and IOT technology this project can be will be implementing successfully. As we like to conclude with the help our project, we hope it able to rescue without any damage.

VII. FUTURE SCOPE

Further, we would like to conclude that with the help of our project, we would be able to rescue the child safely within short period of time. This project has an efficient scope in the future, where this idea can be converted to computerized and intelligence-based production in a cheap way.

VIII. REFERENCE

- [1] Nitin Agarwal, Hitesh Singhal, Shobhit Yadav, Shubham Tyagi, Vishaldeep Pathak “Child Rescue System from Open Borewells” International Journal of Trend in Scientific Research and Development (IJTSRD) Volume: 3 | Issue: 4 | May-Jun 2019 e-ISSN: 2456 – 6470
- [2] SMART CHILD RESCUE SYSTEM FROM OPEN BOREWELL USING ARDUINO V.Sumana Sri Reddy, D.Bhanu Prakash, K.Vinay, A.Rajesh . International Research Journal of Modernization in Engineering Technology and Science
- [3] CHILD RESCUE SYSTEM FROM BOREWELL USING ARDUINO MICRO-CONTROLLER AND IOT M.G. Hari Darshan , S. Hari Priya , K.Haripriya , P.Subha Sundari. International Journal of Research Publication and Reviews Journal homepage: www.ijrpr.com ISSN 2582-7421
- [4] Smart Rescue System from Bore Well Dr. Prakash Bethapudi, Gandhi Netaji . Jour of Adv Research in Dynamical & Control Systems, Vol. 11, 10-Special Issue, 2019
- [5] Development of Child Rescue System Against Bore-Wells Rajan Kumar, Himadri Shekhar Dutta, Pavan Kumar, Robinson.P. 2021 JETIR July 2021, Volume 8, Issue 7 (ISSN-2349-5162)
- [6] International Journal of Advanced Research in Computer and Communication Engineering Vol. 10, Issue 5, May 2021 DOI 10.17148 “IOT Based Child Rescue System from Open Borewell” Padhmaloshani P , Venkateswarlu M , Jagadeesh M, Sushma P
- [7] SMART BORE WELL CHILD RESCUE SYSTEM S. Prakash, K. Narmadha Devi, J.Naveetha, V.Vasanth,V.Vishnushree, International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395 -0056
- [8] International Journal of Innovative Technology and Exploring Engineering (IJITEE) ISSN: 2278-3075 , Volume-8 Issue-12, October 2019 3346 “ Real Time Implementation of Smart Child Rescue Robot from Bore Well using Arm and Belt Mechanism” Jayasudha.M, M.Saravanan