SMART WATER BOTTLE FOR HEALTH CARE

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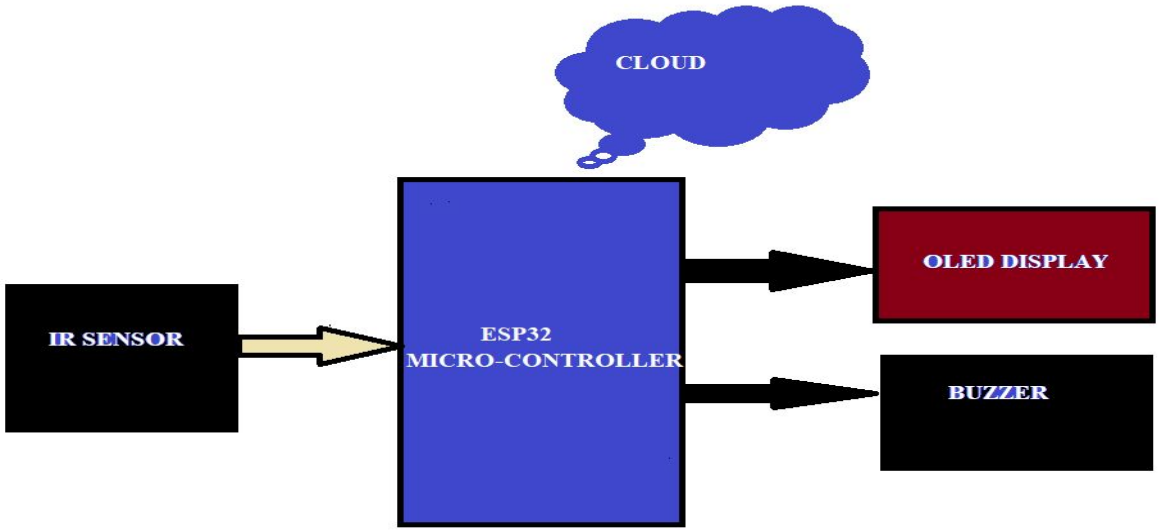
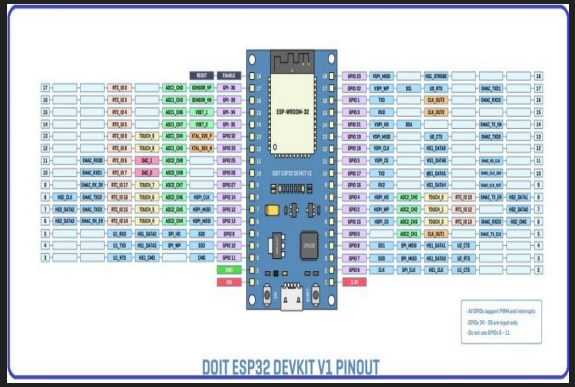
ABSTRACT

As the population in the world is increasing the need of health prevention is also increasing day by day. The major and fundamental requirement of the hospitalized patients is that every Patient should be provided with a better treatment and observation and should be supplied the correct amount of nutrition at the correct time. Hence it is mandatory for everyone in this world to take care of their health properly. All most in all hospital, an assist/nurse is responsible for monitoring the electrolytes bottle level and drinking water bottle. But unfortunately, most of the time, the observer may forget to change the water bottle at correct time due to their busy schedule. To reduce the risk the workload of assist/nurse, we have been developed a “Smart Water bottle for health care”. This system measures the water level using IR sensor. Thus, this system becomes useful for nurses and patients.

Block Diagram



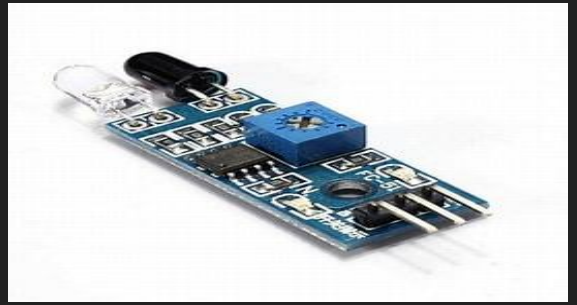
Hardware Tools



ESP32:

We are using this ep32 in our project. Because, it is very powerful, it contains dual core CPU. ESP32 is a best chip .Because, it is built in Bluetooth & Wi-Fi. This is a series of low cost, low-power system on a chip microcontrollers with integrated Wi-Fi and dual-mode Bluetooth. In this we are having 12 bit ADC which measures the external voltage. There are 10 capacitance touch sensor for detecting capacitive touches and LED PWM chip, Hall Effect sensor and built in acceleration for encryption and again depending on the board up to 34 programmable GPIO pins. So basically the ESP32 is very versatile chip, which can be used for many IOT projects of this power wisely. You can even run through battery for long period of time. It also supports Arduino Framework.

Hardware Tools



IR-Sensor –Infrared Sensor

- It comes in two packs namely transmitter and receiver .We can identify by color difference one is white color LED which is transmitter. It can actually transmitting the infrared ray spectrum and other is darker color LED which is receiver. It can receive the transmitted signal.

When we have an object in front of IR-Sensor that object will reflect the rays coming from IR sensor to back to the IR sensor and it is received by a receiver. It generates the voltage across it terminals, voltage level is depends on intensity of light that is reflected by object. So we can use this IR transmitter receiver pair for detecting object.

Hardware Tools

- **Buzzer:**

Buzzer is small efficient component which adds sound features like buzzing or beeping sounds to various projects which are implemented, it is a very small and having two pin structure and can be used easily used on bread boards .It can also acts as indicator which makes an audio as alarms.

OLED DISPLAY:

- We are using 128x64 I2c OLED Display, It has a total of 8192 pixels, which can be programmed individually to turn ON and OFF .All these pixels are uniformly distributed over the display. If we take closer look at the display, we can observe that each pixel is nothing but it is a tiny LED. We can watch anything on this display by glowing the exact pattern of pixels or LED's and keep the rest of Pixels in OFF state. We can also watch a video in this Display. A video is nothing but sequence of pictures. So, we can extract the frames from the video and play them with little delay. So that our eyes can feel that video is playing .We can also use Bitmap which consists of information of pixel is turned on and off '1' means ON and '0' means OFF.

Software Tools

ARDUINO (IDE):

The Arduino integrated development environment is a cross-platform application that is written in the programming language Java. It is used to write and upload programs to Arduino board and it can run on Windows, Mac OSX and Linux. We write the Arduino code and the Arduino IDE compiles it and uploads the compiled code into the Arduino board. This software can be used with any Arduino board, the micro controllers can be programmed using C and C++ programming language.

Conclusion

- By this smart water bottle, the work of the nurse/observer is saved. During night times for nurse/observer, it is difficult to observe the water bottle level of every patient. So, with this smart work the nurse no need to be always observe the water level in bottle. The nurse will get the alert message through then there is a chance to take quick action .This will reduce the stress for nurse/hospital staff in observing the water bottle.

THANK YOU