



e-ISSN: 2319-8753 | p-ISSN: 2347-6710

# IJRSET

International Journal of Innovative Research in  
**SCIENCE | ENGINEERING | TECHNOLOGY**



# INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

Volume 10, Issue 11, November 2021

**ISSN** INTERNATIONAL  
STANDARD  
SERIAL  
NUMBER  
INDIA

Impact Factor: 7.569

 9940 572 462

 6381 907 438

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# IoT Based Dehydration Monitoring System to Help Prevent Common Cause of Disease in Young Children

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**ABSTRACT:** Ultrasound detector, Node MCU microcontroller. This project describes the experimentation design of net of Things (IoT) in real world. Objective of this work is to style water bottles that intimate someone to intake water on time to stay blood heat in stable. With busy schedules of humans and endless distractions, it's onerous to recollect to drink enough water by the humans. in a veryll[oneamongst]one in every of} the health problems isn't drinking comfortable quantity of water properly in a human's way of life. Here the water float detector are often wont to sense the amount of the water and it not solely helps the users to live the amount of water, however additionally indicates the human to drink water once it is time to high up their body. this can be a easy project, that bottle or flask will speaks with the person via passing commands as a message to drink comfortable water. The IoT experiment facility describes during this paper is planned to produce an appropriate platform for an outsized scale experimentation and analysis of IoT thought below real world conditions.

**KEYWORDS:** - LM35, Ultrasound sensor, Node MCU microcontroller.

## I. INTRODUCTION

The internet of things (IoT) is the principle of working in a physical devices such as, vehicles, buildings and other things embedded with an electronics, software, sensors and enable these objects to collect and exchange information. IoT is an eminent technology which make use of the existing wireless communication strategies to sense and control the objects by integrating the physical world with computer, thus improves the overallefficiency,accuracy and economic feasibilities.

## II. RELATED WORK

Dehydration is the third leading cause of death in infants and reason for 65% hospitalization of geriatric patients. Dehydration affects adults, athletes, farmers and ICU patients. Severe health complications that occur due to abnormal hydration status includes head ache, dizziness, delirium, mental disturbances, kidney disorders, heart dysfunctions and even death in extreme conditions. Over hydration is seen in edema patients and athletes who intake fluids to avoid dehydration. Dehydration and over hydration is determined with the help of clinical symptoms. Thirst which is seen as an indicator of dehydration appears only after 2% loss in water and thirst perception is reduced in geriatric patients. This establishes the need for a continuous and real time hydration status monitoring device. Thus, a noninvasive wearable hydration monitoring system based on bio-electrical impedance analysis technique is used for monitoring dehydration and over-hydration states from infants to geriatric patients by calculating TBW, ECW and ICW. It is also devised to include some of the vital parameters such as heart rate and SpO<sub>2</sub>. IoT based alert system is used to appraise the user their state. This device helps in providing self-monitoring, early diagnosis and better treatment which promote good health.



III. METHODOLOGY

The circuit consist the components of core components of node MCU controller, ultrasonic sensor , 5v regulator, power supply, LM35 sensor, LCD display . 12v Power Supply is given to regulator for voltage regulating 12v to 5v then 5v supply is given to node MCU device. VCC and GND pins are connected to regulator.

Ultrasonic sensor connected to node MCU controller. It has four pins, VCC connected to positive, GND connected to negative and output pins are connected to digital pin.LM355 sensor connected to node MCU controller. It has three pins, VCC connected to positive, GND connected to negative and output pin are connected to controller.LCD display connected to node MCU. VCC connected to positive and GND connected to negative and Rs connected to D2, E connected to D3 and D4, D5, D6, D7 are connected to digital pins.

IV. EXPERIMENTAL RESULTS

Figures shows the results of water level that we have consumed and the body temperature of the human when the water is intaken.

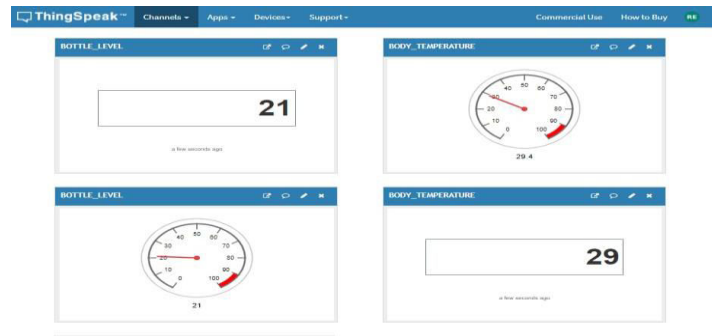


Fig. 1. (a) Waterlevel of the water bottle (b) Body Temperature .Water level of the water bottle and body temperature are shown in analog format.

|    | A                       | B        | C      | D      |
|----|-------------------------|----------|--------|--------|
| 1  | created_at              | entry_id | field1 | field2 |
| 2  | 2021-09-28 14:12:38 UTC | 131      |        | 29.7   |
| 3  | 2021-09-28 14:13:01 UTC | 132      | 21     |        |
| 4  | 2021-09-28 14:13:23 UTC | 133      |        | 29.7   |
| 5  | 2021-09-28 14:13:39 UTC | 134      | 21     |        |
| 6  | 2021-09-28 14:14:04 UTC | 135      | 21     |        |
| 7  | 2021-09-28 14:15:32 UTC | 136      |        | 29.4   |
| 8  | 2021-09-28 14:15:59 UTC | 137      |        | 29.4   |
| 9  | 2021-09-28 14:16:36 UTC | 138      | 21     |        |
| 10 | 2021-09-28 14:18:25 UTC | 139      | 21     |        |
| 11 | 2021-09-28 14:18:54 UTC | 140      |        | 29.4   |
| 12 | 2021-09-28 14:19:10 UTC | 141      | 21     |        |
| 13 | 2021-09-28 14:19:25 UTC | 142      | 21     |        |
| 14 | 2021-09-28 14:19:43 UTC | 143      |        | 29.4   |
| 15 | 2021-09-28 14:20:02 UTC | 144      |        | 29.4   |
| 16 | 2021-09-28 14:20:22 UTC | 145      | 21     |        |
| 17 | 2021-09-28 14:20:41 UTC | 146      |        | 29.4   |
| 18 | 2021-09-28 14:20:58 UTC | 147      | 21     |        |
| 19 | 2021-09-28 14:21:24 UTC | 148      | 21     |        |
| 20 | 2021-09-28 14:21:39 UTC | 149      |        | 29.4   |
| 21 | 2021-09-28 14:21:59 UTC | 150      |        | 29.4   |
| 22 | 2021-09-28 14:22:14 UTC | 151      | 21     |        |

Fig. 2 Weekly Report of the person consuming water and the body temperature



Fig. 3 The body temperature and water level is displayed in the LCD screen display

## V. CONCLUSION

In this project, the proposed model of smart bottle architecture for hydration reminder to remind the humans to intake the sufficient water on time to keep the body stable is successfully implemented. The maximum power consumption used in this proposed system is 5v. Not only smart phones but also the basic mobile phones can also been used for verification and getting execution successfully. Further some possibilities for maintaining the record of daily usage of human sipping h2o are kept as future works and can also use it in another fields.

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