

# TEAM NAME ELECTRO POWER

PROJECT NAME
BABY SHOWER MANAGEMENT SYSTEM

TEAM MEMBERS
BHAV BERI
PRISHA
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HARSHIT AGGARWAL

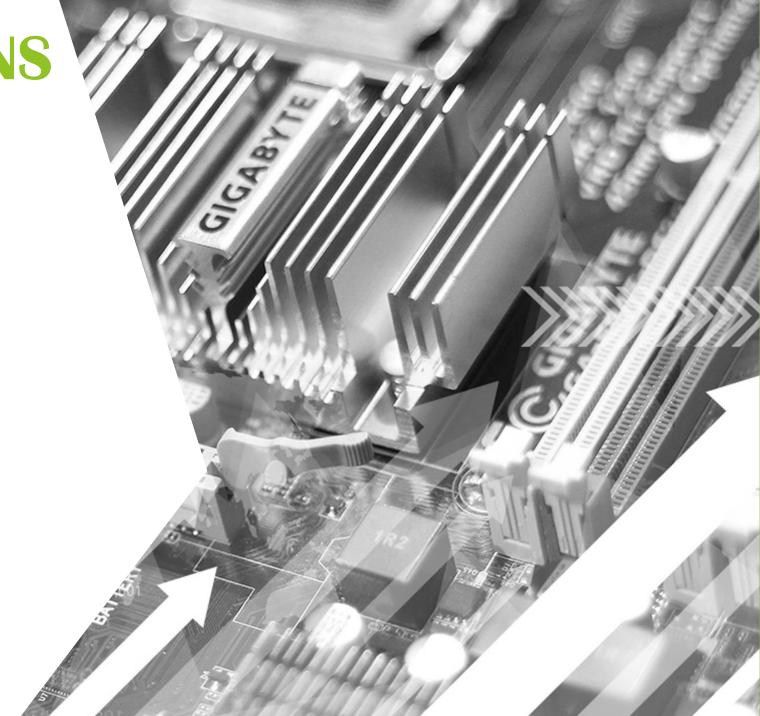
CONTRIBUTIONS

BHAV BERI SOFTWARE HARDWARE

PRISHA SOFTWARE HARDWARE

VANSHIKA DHINGRA HARDWARE SOFTWARE

HARSHIT AGGARWAL HARDWARE SOFTWARE



#### **CONTRIBUTIONS**

- Initially we distributed code of each sensor amongst us, each one of us wrote code for one sensor. Where Prisha was given coding part of buzzer working with temperature sensor, Vanshika was allotted code of ultrasonic sensor which measured water level (errors were taken into account), Harshit did code part PIR sensor such that it was coordinated with led display and Bhav did LED display parallel to ultrasonic sensor along with thingspeak, oneM2M implementation.
- After this Vanshika and Harshit primarily focused on hardware, issues were faced with water temperature sensor since it required an additional Integrated Circuit and also a 4.7kmohm resistor.
- Bhav and Prisha focused in combining codes so that things can run parallely, like led display along with PIR
- After this, we all contributed in debugging when some issues were faced with improper working like wrong or garbage reading, changes were made in code and hardware.
- Finally, once the setup was ready reports and presentation work was distributed equally amongst us.



## **Timeline**

25 May - Finalised the Idea, started working on the implementation

28 May - Got the Hardware Components

7 June - Software Implementation for Major (Non-Cloud based) part Ready

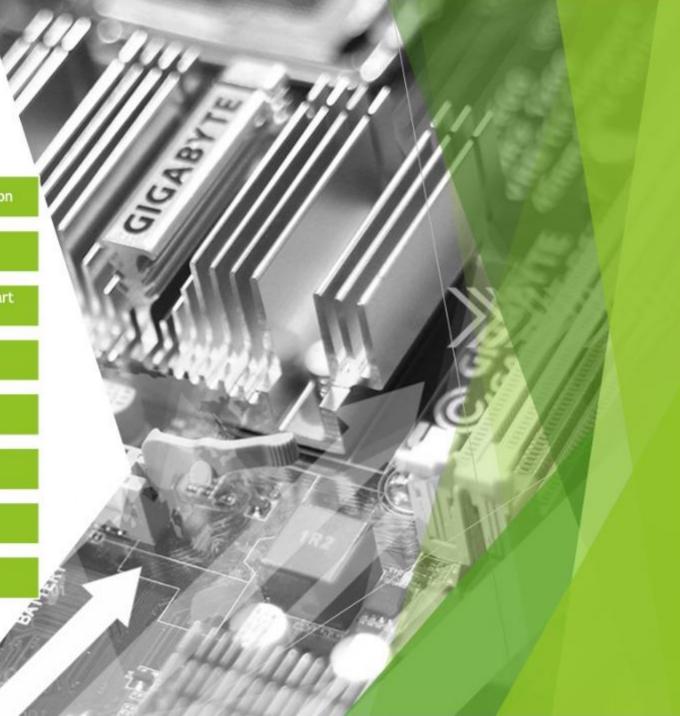
10 June - Most of the Hardware Implementation Ready

----- Waiting for Water Temperature Sensor

21 June - Got the Water Temperature Sensor

25 June - Finally Water Temperature Sensor Worked

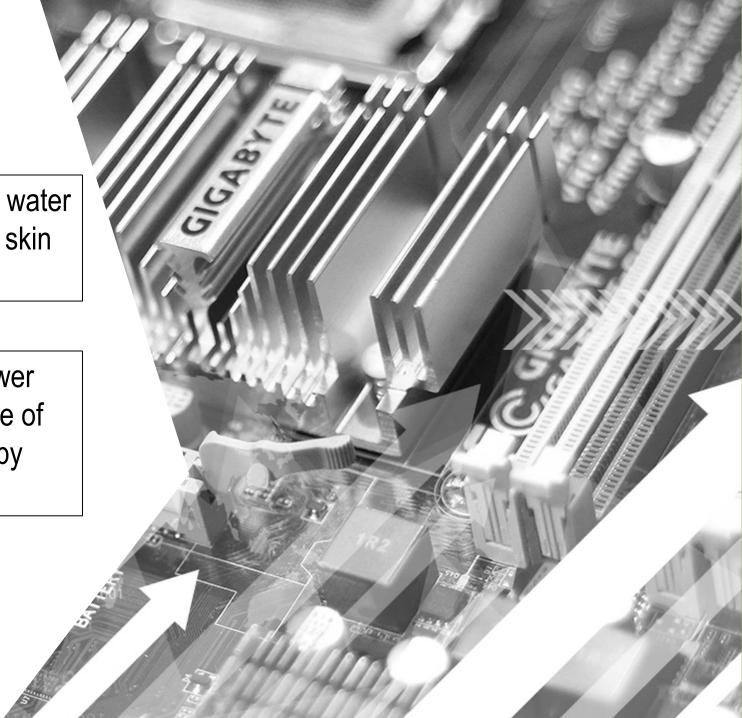
27 June - Final Coding Done with Hardware Implementation



## Inspiration

Babies are sensitive to hot and to cold water as excess hot water can damage their skin and too cold cause dryness issues.

In market there is no overall baby shower management system that can take care of temperature and save resources side by side.

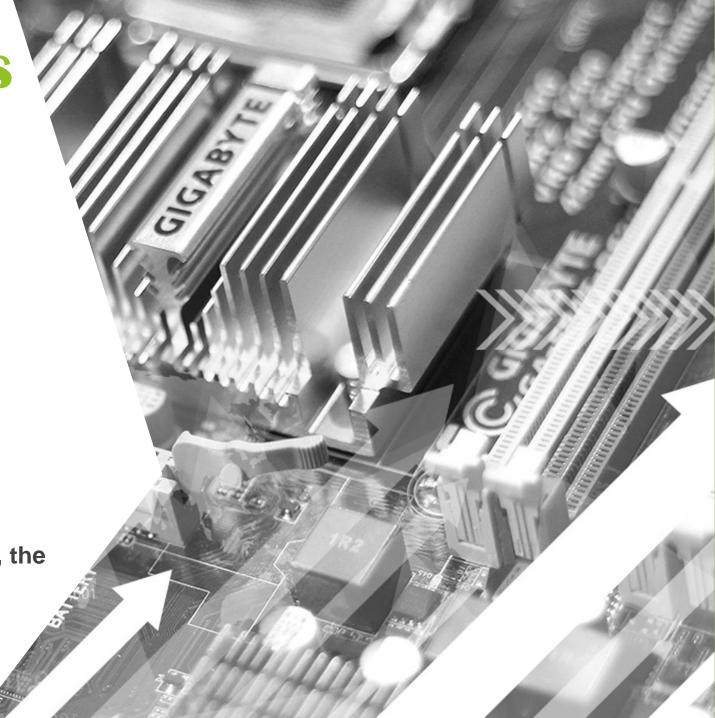


Research Papers

https://www.momjunction.co m/articles/safe-newbornbaby-bathtemperature\_00683932/

• A safe water temperature to bath your baby should be 98.6° to 100°F:(36° to 38°C).

•You can check the temperature with a bath thermometer or dip your elbow to feel it. Also, the bath toys change color if the water is too hot.



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# PRODUCTS AVAILABLE IN MARKET

https://www.amazon.in/Thermometer-Checking-Temperature-Newborns-Elderly/dp/B01MY98912



They separately have to be used each time manually, along with difficulties in sensor readings (As no separate system).



Products are reported to be damaged once put in water due to faulty behaviour of temperature sensor once wet, along with calibration issues in them.

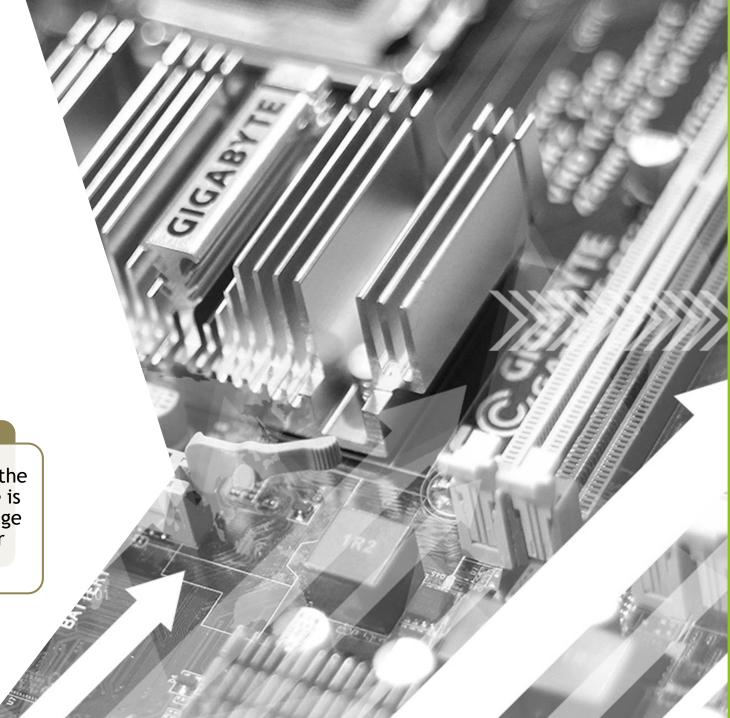
https://www.amazon.in/MotherMed-Thermometer-Floating-BathTub-Swimming/dp/B01N4l19UX/ref=pd\_day0\_sccl\_1\_2/260-7333953-3514043?pd\_rd\_w=PoCVn&contentid=amzn1.sym.ddf3065d-37bd-4713-89a2-28f76ee88912&pf\_rd\_p=ddf3065d-37bd-4713-89a2-28f76ee88912&pf\_rd\_r=8TANQ

#### **PROJECT FEATURES**

Overall Baby Shower Management System

Reads the water level of the Baby Shower Tank and indicates it only when someone needs it (Thus saving power)

It alerts the user if the water temperature is not in optimum range (Thus not safe for baby)



#### **COMPONENTS**

PIR SENSOR: Motion Detector HC-SR501

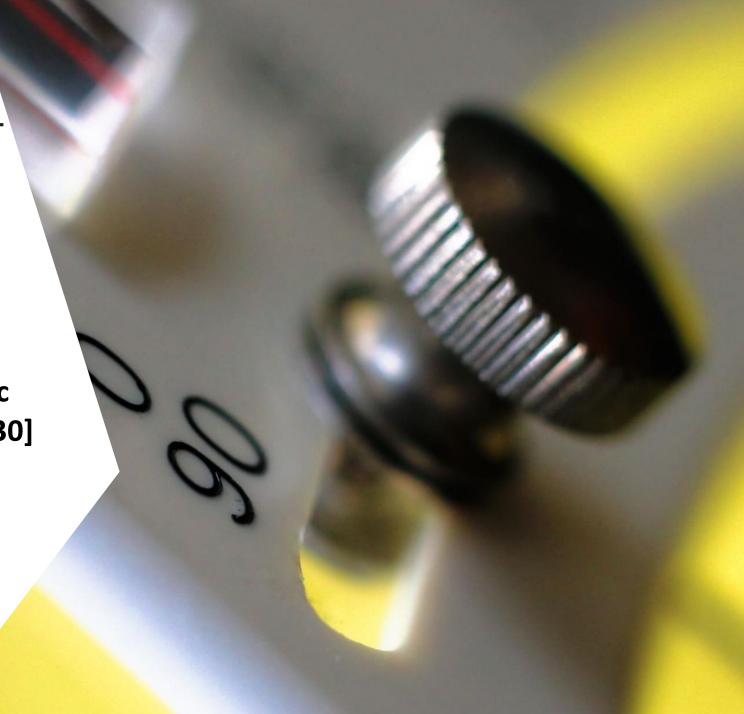
WATER TEMPRATURE
 SENSOR: DS18B20 Waterproof
 Temperature Sensor

ULTRASONIC SENSOR: Ultrasonic
 Distance Sensor HC-SR04 [LB-LR0230]

BUZZER:Interfacing Active Buzzer.

ESP32: ESP32 development board.

LED'S

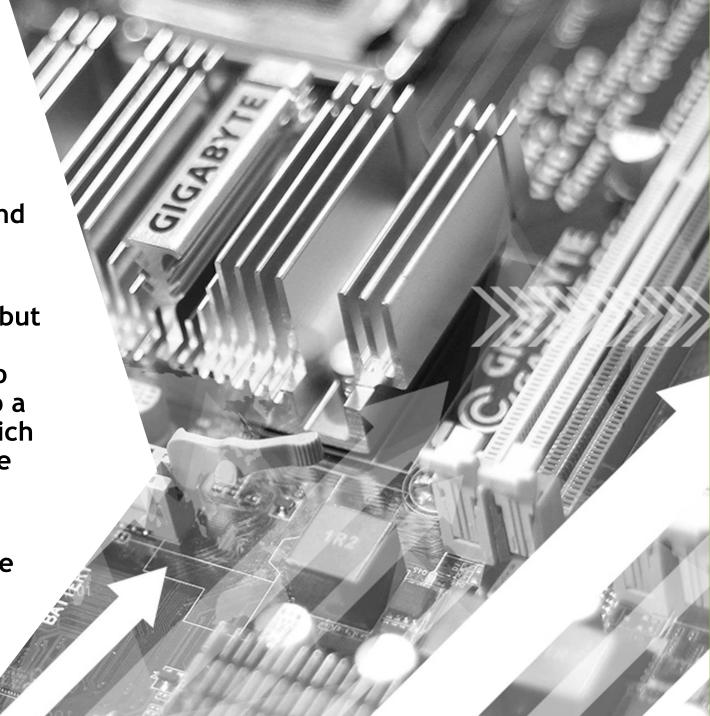


#### **PROJECT DETAILS**

Usage of water temperature sensor and buzzer

• We first decided to use dht11 sensor but since we wanted to measure the temperature of water so we required to use a water proof sensor so we came to a conclusion of using DS18B20 sensor which has an quoted accuracy of +- 0.5 degree celcius.

• This sensor measures the temperature of water and we sound a buzzer if the temperature is above or below optimal range.

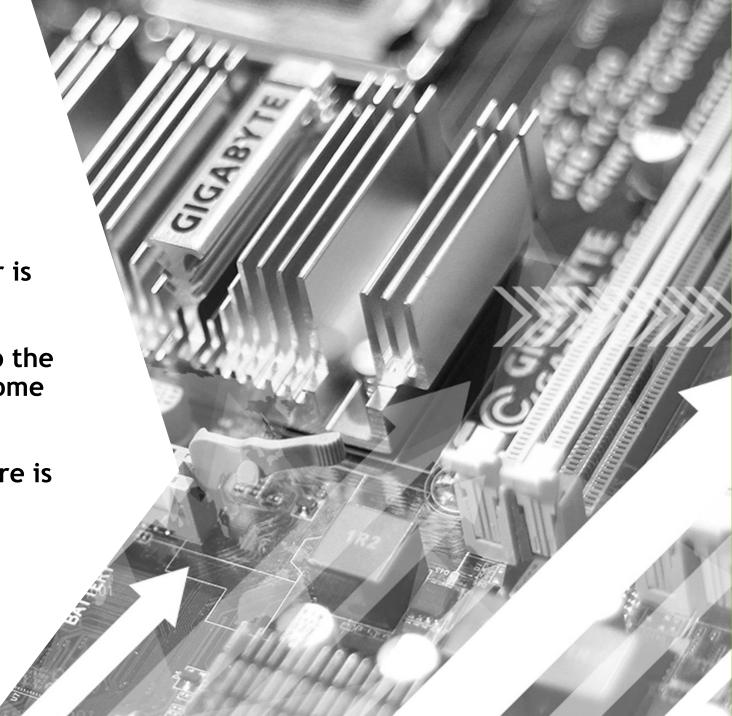


#### **PROJECT DETAILS**

Usage of PIR

• Our main motive of using PIR sensor is to save electricity considering the depletion of conventional sources of energy we need to save electricity, so the whole system works only if there is some motion detected by PIR sensor.

 Basically, LED'S glow only when there is motion in front of PIR sensor



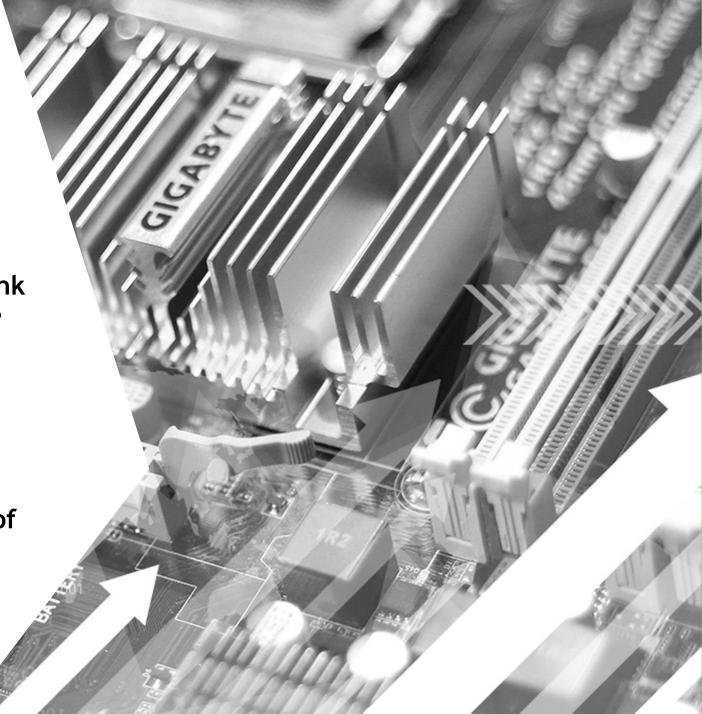
#### **PROJECT DETAILS**

Usage of led display and ultrasonic

• We measure the level of water in a tank using the ultrasonic sensor and glow the led's based upon the level of water.

• If the tank is fully filled all the led's along with green led glows.

• We decided to use ultrasonic instead of water level sensor because of its high range compared to water level sensor.

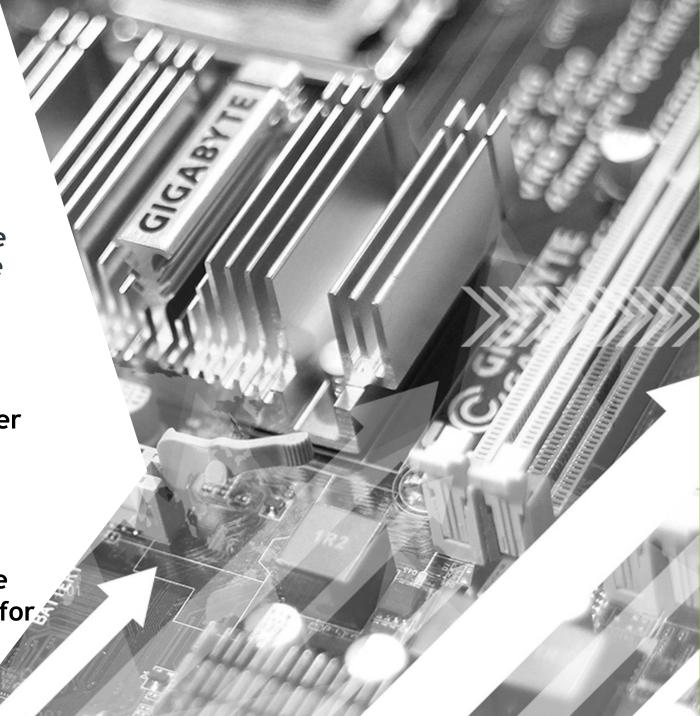


### Scope in future

 As we know conventional energy resources are limited and will expire one day liming the energy usage increase the scope of this system in future.

 Further, we can use pH Sensor for measuring the correct pH value of water for babies soft skins (Very important in areas with high water solubilities)

 We can also make a water heater cum cooler for the tank, for maintaining the correct temperature as when needed, for hassle-free experience.



### **SEQUENCE OF WORKING**

