

Assignment 1 – BELKIoT

Problem-

Once in a lifetime, everyone has been given an important task to watch the milk and prevent it from splashing. But there have been instances where we get distracted that causes a mess. A simple IoT set-up to prevent a catastrophe.

Tools Used-

Ultrasonic sensor, dht11, buzzer, IoT tech, internet

Data provided-

Peak point level and temperature using sensors

Insights-

The ultrasonic sensor along with side DHT11 can be used to provide an instant alert if the given limit/level and temperature has been crossed.

Action-

Steps:

1. Place the ultrasonic sensor closer to the utensil, allowing it to measure the level of any liquid. Here we can take milk as an example.
2. We initially provided data to the sensor for a certain level of milk in the utensil.
3. When the milk reaches its boiling point is about to rise, an alert trigger using a buzzer starts ringing as well as a message is delivered as an SMS to the mobile phone.
4. This will eventually prevent the milk from splashing out and save us from mom's shouting.

Problem-

The 21st century has seen numerous developments in technology. The mobile phone is one of its gems. Nowadays, kids at age 5-6 get iPhones and whatnot. I am not here to complain about that, but

from my personal experience, any electronic device has played its part in the distraction

Tools used-

Proximity sensors or ultrasonic sensors, IoT Cloud tech, OpenCV for advance usage using camera (not needed)

Data Provided-

An ultrasonic sensor helps in providing object detection, this will let us know if the object is in place

Insight-

An ultrasonic sensor sends a wave of signals to detect an object which then gets reflected. However, in the absence of an object, no signal is reflected which eventually triggers the buzzer.

Action-

Steps:

1. Use any object detecting sensors to find the object placed at a certain position during a given time interval example- 60 mins.
2. If the object is displaced from the stationary position, a trigger alert is sent to the device connected to the sensor using the IoT cloud.
3. The alert will not switch off unless the object is positioned back at the exact position.
4. (for extreme emergency) A simple quit button is created which will help us use the device during situations like an urgent call.

Problem-

IoT in fitness - Counting

We all have hit the gym or done some exercises at home, but sometimes we do it without proper guidance and count. A simple IoT device can be used in such a scenario.

Tools used-

Pyroelectric sensor, Arduino UNO, IoT Cloud database

Data Provided-

With a pre-defined motion, the ultrasonic sensor will do the counting E.g., pushups.

Insight-

An appropriate sensor counts the number of times it detects the body and stores it in Arduino, which eventually is sent to the database to save the records.

Action-

We all have hit the gym or done some exercises at home, but sometimes we do it without proper guidance and count. A simple home device can be used in such a scenario.

Steps:

1. Using a pyroelectric sensor, we can detect a particular motion of the body.
2. The body motion can be a sit-up- push up etc.
3. With every exercise performed, the body motion is detected, and the counts are saved by the device.

4. After we finish the exercise, we can send the counts to our laptops, mobile phone etc. to store the records.

5. This simple device will help us keep track of our fitness.

(Additional adding)

If we connect our laptop with OpenCV and use facial recognition, we can build our trainer.