

# IOT BASED SMART PILL DEVELOPMENT FOR MEDICAL FIELD ADVANCEMENT

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**Abstract:** In contemporary days individuals forget to consume their medicine on time because of busy routine and scheduled lifestyle. Therefore for that purpose designed a digital pill that is employed to watch the intake of medicine along with time. It is applied in real time to the person who need to intake their medicine on accurate time. To monitor the consumption of medicines through the use of pill which is placed in the food track of human. Even from long distance we could able to determine whether the concerned person has consumed their medicine on time or not. Digital pill is a medical device which is indulged with sensors.

**Keywords:** medicine, smart pill, consumption, tracking.

## INTRODUCTION:

Now a days wearable health care monitoring system are available in market which needs to fix outwardly to the patient. In recent days IoT plays a serious role in health care monitoring system. IOT device allows the doctor and patient to interact in real time, hence there is lesser need for a patient to visit a hospital.

Even various reasonable mobile applications were also additionally developed to remind the person to have their medicine. Moreover doctors prefer to use some kind of medical app to diagnose and treatment. Devices such as temperature sensor, pressure sensor, proximity sensor, ultrasonic sensor are widely employed in health care monitoring to access the patient. Digital pill device measure various intake of the person and distinguished the information concerning medicine consumption. This paper proposes a smart digital pill which is used to monitor the consumption of medicine. Smart pill can reduce the responsibility of the family members towards giving medicine on time. This technique get the feedback about pill to the user.

## RELATED WORKS:

- In (1) this project carries with a pill which is to discover the consumption of medicine
- In (2) uses arduino uno and ESP8266 for transmission and reception of information.
- In (3) pill, it encapsulates array of sensors which is used to detect the medicine.

## PROPOSED METHOD:

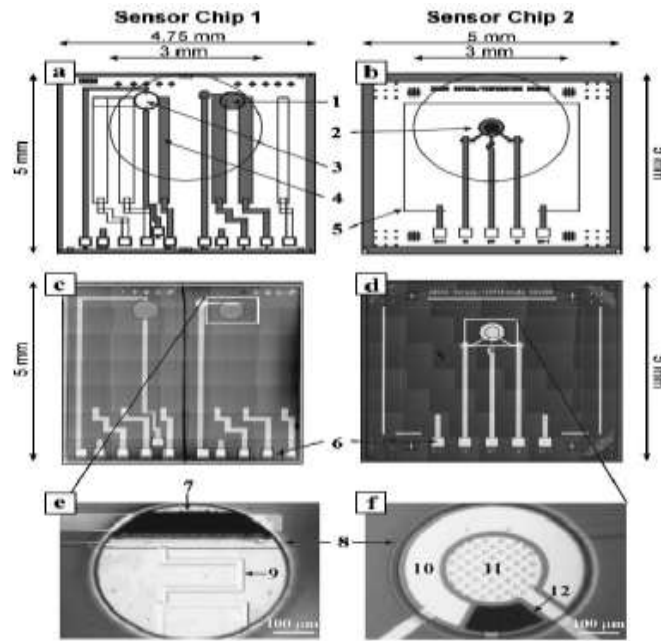
The pill is designed with array of sensor which is present in between the sensor chip and control chip. The entire pill is coated with spirulina in order to place it in food track of human. The radio transmitter is used to convey the information about the capsule to the data transmitter. ESP8266 Act as a transmitter for passing the data through IOT technology.

The ESP8266 is a WLAN module that is low value used to access the microcontroller to the WLAN network. The ESP 8266 forwards the data of medicine consumption to the Arduino. The Arduino Uno analysis the data and decides the name of medicine as per programming done in it. The Arduino Uno is specifically programmed as per our requirement using computer language. Moreover the digital pill can able to show the precise time at which medicine consumed. The website can also be created in order to access the full history of medicine consumption.

## ARCHITECTURE OF PROPOSED METHOD

### SENSOR:

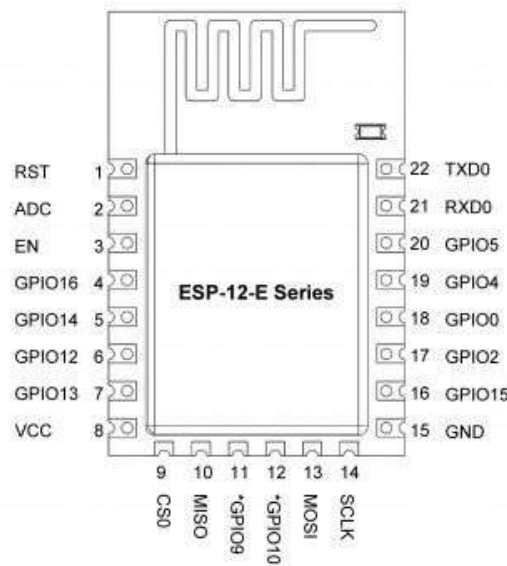
Valporate sensor is used to senses the composition of the medicine and give alert to the user about the intake of medicine through transmission devices. Based on the coding we done in the arduino kit the output will exhibit as name of the medicine and along with the time of the medicine consumed. Valporate ion selective sensor is prepared by valporate doped polypyrrole which is electrochemically prepared by anodic polymerization of pyrrole in the presence of valporate ion in aqueous solution.



Sensor chip

**ESP8266:**

ESP8266 is an intrinsic wifi network solution that offers the any type of microcontroller to access the internet connection. The range of esp8266 wifi module varies depends upon the antenna soldered to it. The esp8266 is a low cost and low power semiconductor device. ESP8266 is integrated with tcp/ip protocol to offer web association. Specific set of AT commands have been used to communicate with the microchip.ESP8266 and Arduino Uno plays a data transmission role.



ESP8266 WIFI MODULE

**ARDUINO UNO:**

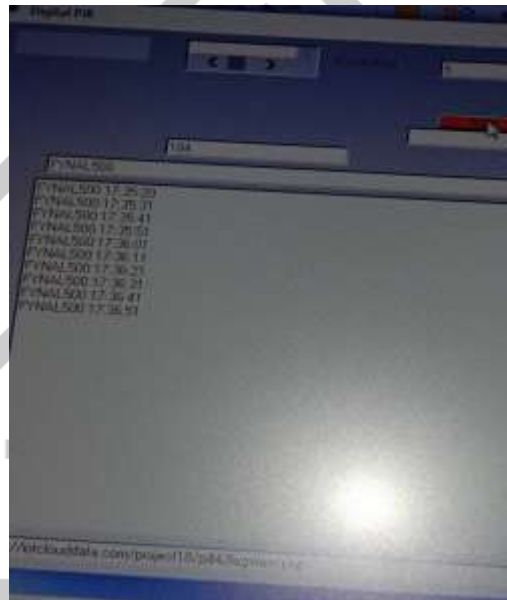
It is a microcontroller which is based on Atmega328P. It comprises of 20 digital pins, resonator,usb connection port,power jack. The computer language such as c and c++ have been used to do programming in arduino board. The input voltage to arduino varies from 7v to 12v. It includes physical programmable circuit board and software. Using integrated development environment (IDE) we can write a code in computer and upload it in the physical board of the arduino.



ARDUINO UNO

### PERFORMANCE EVALUATION:

Here the arduino system has been coded for the capsule dolo 650 (common name of paracetamol), vicks action 500 (FYNAL500) and water. When the digital pill is dipped in the liquid state of capsule, the pill senses the capsule and the information is passed to the esp8266 wifi module through which data is transmitted to the user. The website can also be created to transfer the data for long distance. The website is created (<http://iotclouddata.com/project18/pill42logview.php>). The history of capsule consumption can be viewed through this website.



### CONCLUSION:

In the future, there is a possibility for the development of a micro-electronic pill with a camera, which is used to view the internal structure, based on imaging technology. There is also a chance for developing a micro-total analysis system on a single chip, which is capable of transferring the information or data to a remote location. Here, the IOT plays an essential role in transferring the data without interruption. IOT is an open-source platform used to store and retrieve data without any interruption.

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