"A CRITICAL STUDY ON SMART TOILET FOR SWACHH BHARAT&IT'S EFFECTIVENESS"

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ABSTRACT

In India more than 57000 common toilets are listed on Google under the scheme of SwachhBharat. Cleanliness provides a steady & healthy economy. In India many common toilet may appear clean to naked eye but it having bacteria. The abstract of the paper is to provide clean, smart & hygiene toilets. This paper can boost the Swacch Bharat project. In existing system of running toilet, toilet is clean by sweeper. The sweeper cleans the toilet in non periodic time of interval.

The proposed system is smart & it send message to notify the sweeper whenever toilet is unhygienic. Therefore our aim is touse safe, clean &smart hygienic toilet. This paper is based on IOT & different type of sensors.

Keywords:-**Swachh Bharat,IOT,Cleanliness,Sensor.**

1 INTRODUCTION

Indian people do not have sufficient knowledge of how to use toilet.This bring to several diseases for example cholera ,malaria, flu, typhoid etc. To avoid this kind of bacterial infection in common toilets, we have introduced a new concept "Smart toilet using IOT. It gives smart, clean &hygienic toilets .In this project we are using sensors ,IOT, GSM, microcontroller .By using this we are trying to develop clean, hygienic & smart toilets.

2 LITERATURE REVIEW

Many Researcher has developed different Smart Toilet technique which we are studied here

Imanmorsia,et al, they proposed "wireless gas detector system using microcontroller ,PLC & SCADA system for monitoring Environmental pollution" this paper present gas detection system & measure gas pollutant emission in the air &use to detect different gases.

Pandyachintan ,et al, they proposed "Automatic working bio-toilet tank for railway coaches", in this the whole system is totally depend on train speed.if train speed exceed 30 km/h then exit door will open & waste depositor drop in tracks & input door is close. Input door open when train speed below 30 km/h.[7]

KitisakOsathanunkul ,et al, they proposed "Configurable automatic smart urinal flusher based on MQTT protocol "they examine the way to cut the wastage of clean water used in public toilet.[4]

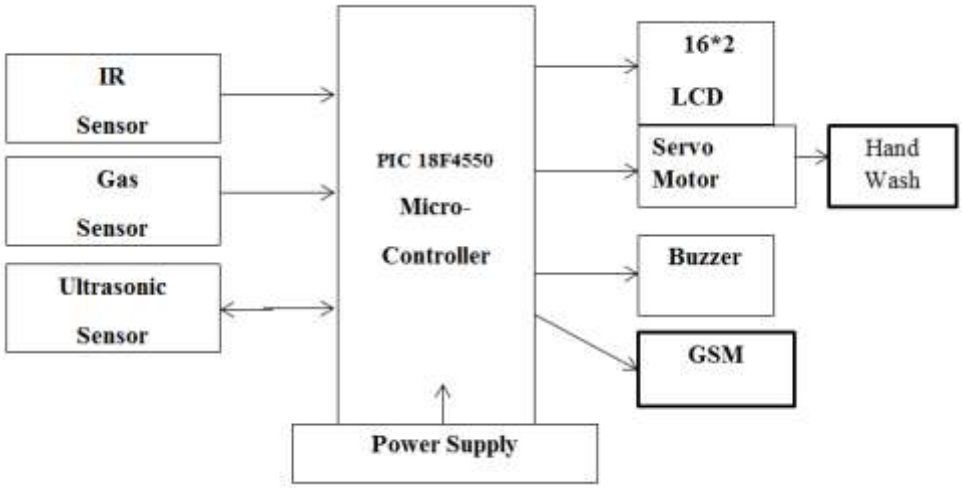
Mithyav ,et al, they proposed “smart toilets using Turbidity sensor” In this they strictly follow the cleanliness & proper sanitation in the toilets to produce dieses free toilets.[1]

3 SYSTEM DEVELOPMENT

3.1 Proposed System

The Basic Block diagram of the system is shown in below in above figure major component are:-

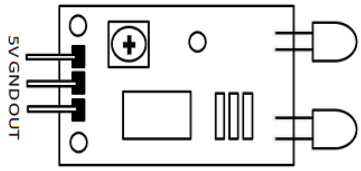
1) Microcontroller2)Sensor3)GSM4)Power Supply5)Buzzer6)LCD Display



Microcontroller

Microcontroller is compact IC designed for particular operation in embedded system .It include processor ,memory & input/output on single chip microcontroller are designed for embedded application.PIC 18F4550 is one of the most advanced microcontroller from microchip .This controller is generally used for modern application reason is that it have low cost, high quality .It is ideal for low power & connectivity application that benefit from the available serial port.

3.2 IR Sensor IR sensor module mainly consist of the IR Transmitter & Receiver, Variable Resistor ,output LED in brief.



The IR sensor is used to detect whether dirt is present or not in the toilet. It can observe the dirt by comparing,after using the toilet. If it can detect the dirt, it raises the alarm, and the users may get Notification and they clean it.

3.3 LCD

LCD stands for Liquid Crystal Display. By the use of the LCD, we can display all the output. LCD didn't know about the data or commands are applied to its data bus. LCDareofenlyused in most of the embedded system, because of its cheap price, easy availability and programmer friendly.

3.4 Ultrasonic sensor

It works on the principle to that of SONAR technology used in submarine

ultrasonic sensor transmit sound waves of high and inaudible frequencies which bounce around the space and return back to the sensor any movement in the space that disturb the wave pattern causes the sensor to activate, In ultrasonic sensors sound pulses are used for the measurement of distance A pulse is sent out by transmitter performs which is reflected against the fluid whose level is being measured. transmitter performs two functions 1)simultaneously send out the pulse 2)at the same time initialize the timer circuit to counts the clock cycles. Ultrasonic sensor is used to measure depth of septic tank. if tank is full then it communicate with particular person then that person clean the tank. after cleaning the ultrasonic sensor sense the tank level & send message to corresponding person.

3.5 GSM

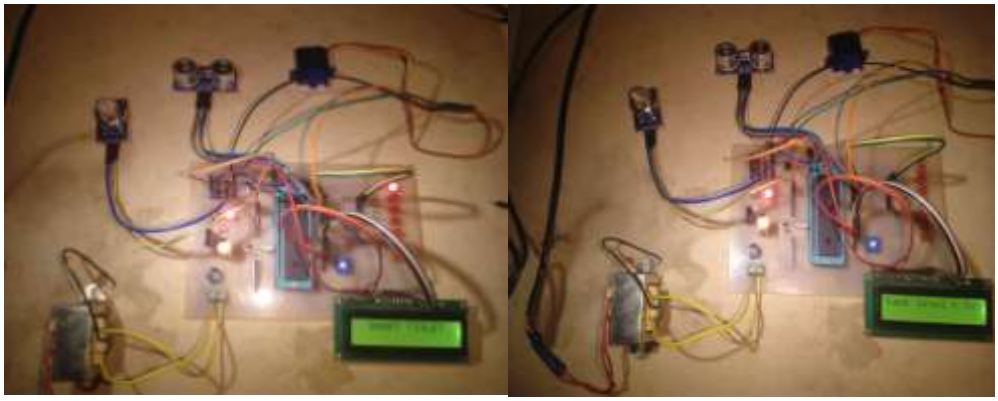
The termGSMindicateglobal system for mobile communication. It make communication from one place to a different place. GSM establishes communication between computer &GSM & GPRS.

When any event occur the system will response the inform to person by making voice call & SMS.GSM continuously checking messaging activities for person. The person must check particular event of its duty by their sensor.

3.6 Gas sensor

Gas sensor used to detect unwanted gases & smell which is present in toilet .For this we use Tgs813 gas sensor it can detect methane ,butane, hydrogen, carbon dioxide .when gas is present the output of sensor is high & send data to controller ,then controller blink red led light. This can be indication for sweeper to clean the toilets.

Working Model Tank Level.



Toilet cannotused.

ADVANTAGES

. It promotes the “swachhbharat scheme”.

. It prevent many disease like cholera, asthma ,malaria.

4.CONCLUSION

Our proposed system will make awareness in people about sanitation .This system make every people to follow the rule of cleanliness & proper sanitation in toilet .It prevent the people from many diseases in smarter way for this use of IOT compulsory.

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