

# Automatic Cleanliness and Maintenance System of Public Toilet Using IOT App for Sanitary Inspector

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**Abstract**— In the cutting edge world, the advances are definitely grown, yet at the same time the cleanliness in our nation is under risk. The abstract of this paper is to deliver clean and hygiene toilets. All the public toilets should be clean and hygiene. In our country, people do not have enough knowledge of using toilets. This leads to several diseases such as Malaria, Hepatitis, Flu, Cholera, Typhoid, etc.. Thus a smart IoT Based public toilet cleanliness monitoring system is required to monitor the hygiene condition of public toilets. It would much useful to the society since it is health conscious.

**Index Terms**—IoT, Public Toilet, Sanitary Inspector

## I. INTRODUCTION

Internet of Things (IoT) is used to maintain the toilets in the clean and hygienic way. It is to create awareness among the people. It is based on IoT concepts using sensors and WiFi launch pad to frequently monitor the public toilets.

## II. LITERATURE SURVEY

The numerical simulation of the flow filed on toilet of environmental protection and energy saving for the long distance train by Wang Kai-bao, Chu Ya-xu, Yang Qiu-xiao and Yang Li-li. This project identifies the numerical simulation of the flow field on air intakes and flushing system the pressure and velocity system could be found and would be much useful for investigation. A study of indoor air quality of public toilet in university's building by Ade Asmi. This work determines the level of gas pollutants exist in the male and female toilets. Design and development of the red cross mobile flush toilet toward the smart design shelter by Yasuhiro Soshino, Akinori kuroda. This work is to develop a mobile flush toilet which is independent from existing power supply, water supply and are used as shelters in emergencies.

## III. PROPOSED SYSTEM

The status of the public toilet is updated frequently to the android app which assists the sanitary inspector to identify the status and cleanliness of the public toilet in his region.

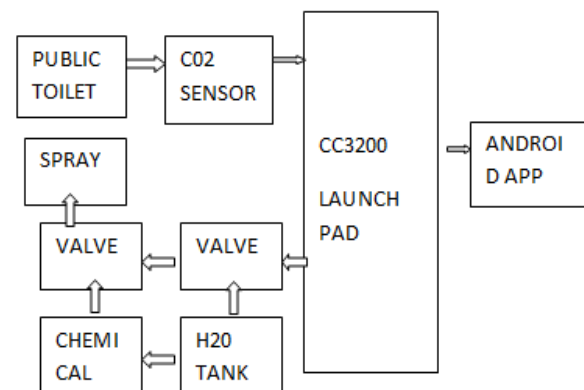
### A. OBJECTIVE OF THE PROJECT: .

To enable a model methodology which deals with the status and cleanliness of any public toilet using an IOT Based

application.

### B. ARCHITECTURE OF THE PROPOSED SYSTEM

The architecture is shown in the block diagram as in fig.1



Proposed system architecture

## IV. TOOLS USED

### A. MQ6 SENSOR

The MQ6 Sensor can detect or measure gases like LPG and butane. The MQ6 sensor module comes with a digital pin which makes the sensor to operate even without a microcontroller and that comes in handy when we are only trying to detect one particular

### B. CC3200:

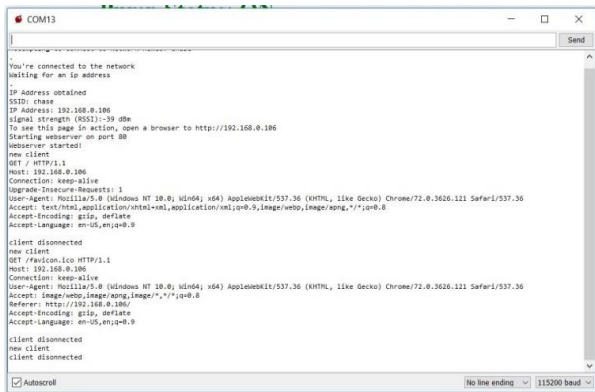
CC3200 launch pad is an evaluation development platform for the cc3200 wireless microcontroller, the industries first single chip programmable MCU with built in wifi connectivity. The board features onboard emulation using FTDI and includes sensors for a full out of the box experience.

### C. ENERGIA COMPILER

Energia is an intuitive Integrated Development Environment (IDE) that is based on the popular and easy to use processing IDE. In addition to being a simple IDE, Energia is also supported by a robust framework of intuitive APIs that is based on wiring.

**D. HTML**

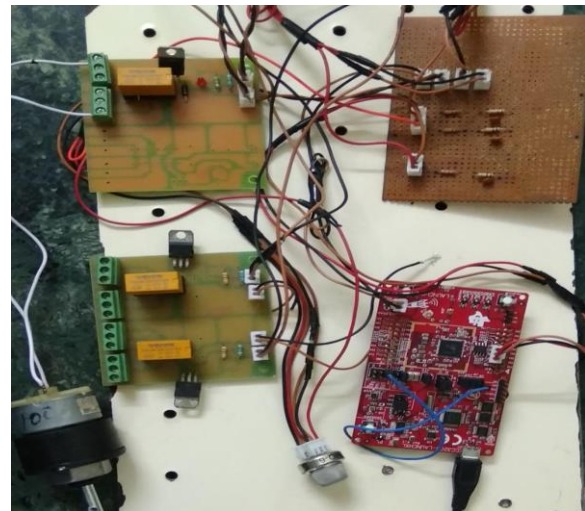
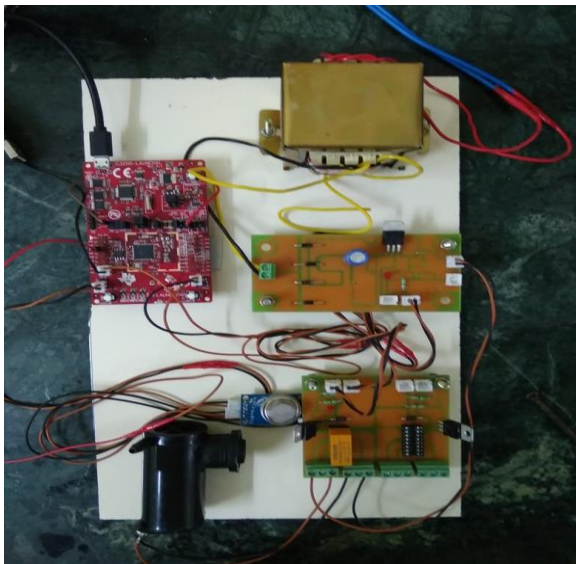
Hypertext Markup Language is the standard markup language for creating web pages and web applications .With cascading style sheets and javascript,it forms a triad of cornerstone technology for the World Wide Web.



**E. IMPLEMENTATION**

CC3200 wifi Launch pad is used to interface automated public toilet with the mobile android app.MQ6 sensor is used to measure the carbon dioxide level and adore in the public toilets.CC3200 launch pad controls the water valve and chemical valve

and releases empty water or along with the cleaning chemical based on the co2 value measured in the launch pad.The status of the public toilet is updated frequently to the android app which assist the sanitary inspector to identify the status and cleanliness of the public toilet in his region.



**V. RESULTS**

When the CC3200 launch pad interfaces with the toilet and the android app ,the MQ6 Sensor is used to measure the c02 level and the cleaning chemical works on the basis of both the launch pad and the Carbon-di-Oxide measuring sensor which the toilet clean and the sanitary master to be alert.

**VI. CONCLUSION**

The proposed paper will create awareness among the people about proper sanitation. It makes use of internet of things which is the rapidly growing technology. Our proposed system will make everyone to follow the cleanliness and proper sanitation in the toilets which prevents many contagious diseases which spread due to improper sanitation. Thus by maintaining technologies in a smarter way, the cleanliness can be maintained in our country.

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