**IBM NAAN MUDHALVAN**

**SKILL UP**

PROJECT TITLE: SMART PUBLIC RESTROOM

COLLEGE: PERI INSTITUTE OF TECHNOLOGY

DEPT: ELECTRONICS AND COMMUNICATION ENGINEERING

DOMAIN: INTERNET OF THINGS (IOT)

Submitted By

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PHASE:1

**1.1 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, our government has introduced the scheme called “Swachh Bharat” (Clean India). Keeping the toilets uncontaminated is the one of the objective of Clean India scheme. This paper can be helpful to encourage the clean India project. In future, it can show the major part in clean India scheme. In an Existing system, they are focused only on identifying the dirt in the toilets. In our proposed system, we have determined on keeping clean toilets, observing the sweeper’s working activities. It can dodge many syndromes. It may create the consciousness amongst people about the toilet management. Therefore, our development is to use safe and hygienic toilets. This paper is based on IOT and image-processing concepts using different sensors like smell sensor, IR sensor, sonic sensor, RFID reader. By using these sensors, we can create the smart toilets.

**1.2 INTRODUCTION**

In our country, people do not have enough knowledge of using toilets. This leads to several diseases, such as Malaria, Hepatitis, Flu, Cholera, Streptococcus, Typhoid, etc. Hence we introduce the concept in the IOT called "Swachh Shithouse" The term Swachh means ‘Clean’. Then the term Shithouse means ‘Toilet’. It is introduce to use and maintain the toilets in the clean and hygienic way. The project is based on IOT concepts using different sensors like smell sensor, dirt sensor, sonic sensor, RFID reader, Database. Using these materials we are trying to provide the clean toilets and create the awareness among the people.

**1.3 PROJECT DEFINITION:**

Smart toilets have different sensors that perform multiple functions beyond just flushing. These sensors use infrared rays and ultrasound to detect if the person is inside the washroom and how long he has been sitting there. These sensors are equipped with Wi-Fi connectivity and provide real-time data.

**1.4 OBJECTIVE:**

Public toilets are essential to equitable access to public outdoor spaces. They allow for the space to become a destination for extended periods for socialising, exercise, commuting and accessing community and commercial services. It's designed to improve the hygiene level and personal cleansing experience. Moreover, it gives insight to stakeholders to save manpower & resources, and enhances safety, operations and customer experience. The concept of modern smart toilets originated in Japan in the 1980s.

**1.5 IOT SENSOR DESIGN:**

In this project many components such as sensors, modules, power Smell sources and so on are used

**SENSORS**:

* Smell sensor
* IR sensor
* UltraSonic sensor
* RFID sensor

**CONNECTIVITY**:

* Wifi module

**POWER SOURCE:**

* Battery/solar

**DATA PROCESSING:**

* Data processing will send raw data to a central processing unit.

**1.6 INTEGRATION APPROACH:**

Smart toilets have different sensors that perform multiple functions beyond just flushing. These sensors use infrared rays and ultrasound to detect if the person is inside the washroom and how long he has been sitting there. These sensors are equipped with Wi-Fi connectivity and provide real-time data. For example, if the person experiences a fatal incident, the motion sensors will detect it and send an alert to facility management to check on them. In addition, the sensors also monitor the air quality inside the restroom

**CONCLUSION:**

The initiative met its goal of creating an economical, user-friendly interface between the cleaning company and public restrooms, allowing for more effective staffing. This program's installation is straightforward. Time series forecasts can be utilized to conduct simultaneous toilet research. If this toilet condition is utilized in the toilet, it assists in keeping the toilet clean before it becomes unclean. The mobile app is considerably easier to use now that the data display has been updated. The Internet of Things device is both inexpensive and portable.