

# Automatic Washroom Cleaning System

Pinki Banait, Sarika Kore, Arman Shaikh, Rameshwar Marbate, Divya Tayde, Sonali Katre, Prof. Amol Mahajan

Department of Information Technology, JD College of Engineering and Management, Nagpur, India

## ABSTRACT

The public washrooms remain perpetually dirty because the users don't flush water after using the toilet. In this project we are implementing the automatic washroom cleaning system, which based on electronics as well as software programs with different algorithms for the automatic system. When the public toilets remain perpetually dirty then the system clean the toilets automatically with the help of various sensors and arduino controller.

**Keywords :** Washroom Cleaning System, Micro-Service, Arduino UNO

## I. INTRODUCTION

In India the local authorities or commercial businesses may provide public toilet facilities. A public toilet is accessible to the general public. The toilet is available for use by the general public, customers, travellers, employees of a business, school etc. It may be municipally owned or managed entered directly from the street.

Local authorities or commercial businesses may provide public toilet facilities. Railway stations, filling stations and long distances public transport vehicles such as trains, ferraries and planes all are generally provide toilets for general use.

A public toilet is accessible to the general public. Where toilets are available people can enjoy all physical activites . It may be within a building that, while privately owned, allows public access, such as a department store, or it may be limited to the business's customers, such as a restaurant.

## II. PROBLEM STATEMENT

The public washrooms remain perpetually dirty because the users don't flush water after using the toilet. It is also because of reason that regular cleaning isn't done properly. When the public toilets remain perpetually dirty then the system clean the toilets automatically with the help of various sensors and arduino controller.

## III.LITERATURE REVIEW

In [1] a Definition of Micro-Service Bad Smell was proposed. In this project the bad smell is decided with the help of scale with range from 0 to 10. Where 0 says that "The bad practise is not harmful" and 1 says that "The bad practise is extremely harmful". Here multiple scaling factors values are used to decide the range of bad smell with the help of the micro-service. If any one Device or service has damage it affect the whole system.

In [2] Saving Water with Water Level Detection in a Smart Home Bathtub Using Ultrasonic Sensor and Fuzzy Logic was proposed. In this system, fuzzy logic

was used in making decision to turn off or turn on the water tub or it can be responded based on timer setting

By user and water level detection. Water tub can also be opened or closed by manually.

In [3] a Robust Estimation of Simulated Urinary Volume from Camera Images under Bathroom Illumination was proposed. In order to determine the appropriate approximate curve they proposed a binarizing method using background subtraction at each scanning row and a curve approximation method using RANSAC.

#### IV. PROPOSED SYSTEM

To overcome the limitations of the above system, an Automatic Washroom Cleaning System based on software and hardware technologies is proposed. Here Embedded C technology is mainly used. The project mainly aims in designing completely automated cleaning with the help of this system by using sensors to maintain cleanliness in toilets. There is no need of a person to ON/OFF the tank or flush.

The arduino is a microcontroller which controls all the devices or sensors. The board is equipped with sets of digital and analog input/output (I/O) pins that may be interfaced to other circuits. The board has 14 Digital pins and 6 Analog pins, and programmable with the ArduinoIDE via a type B USB cable.



Figure 1. Arduino UNO

The water level detector detects the level of water according to input the arduino ON/OFF the tank automatically.

The smell sensor sense the dirty smell of the washroom and it will give the acknowledgement to the controller. The body detector will detect the body of human being and it will give acknowledgement to the controller to clean the washroom with the help of flusher.

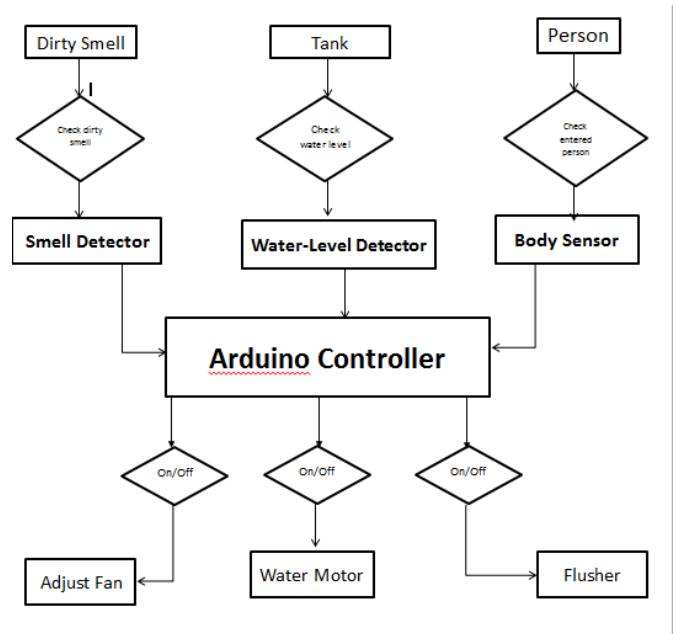


Figure 2. The process of automatic washroom cleaning system

## V. CONCLUSION

After studying the literature review we found some advantages and limitation of existing system. By implementing some method and technique we are trying to develop the automatic system for cleaning the washroom. In our project, we are using three sensors to control or handle the system and we also use relay in our project for the purpose of ON/OFF the device.

## VI. ACKNOWLEDGEMENT

First, and foremost we would like to thank God for the wonderful opportunities and challenges he has given to us. We express our sincere gratitude to our guide Prof. Amol Mahajan Sir for providing his valuable guidance, patience and for encouraging us to do our best. We wish to thank Prof. P. Lohe, Head, Department of Computer Science and Engineering for his valuable contribution in fulfilling the requirement related to the project.

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## Cite this article as :

Pinki Banait, Sarika Kore, Arman Shaikh, Rameshwar Marbate, Divya Tayde, Sonali Katre, Prof. Amol Mahajan, "Automatic Washroom Cleaning System", International Journal of Scientific Research in Computer Science, Engineering and Information Technology (IJSRCSEIT), ISSN : 2456-3307, Volume 5 Issue 2, pp. 37-39, March-April 2019. Available at doi : <https://doi.org/10.32628/CSEIT19523>  
Journal URL : <http://ijsrcseit.com/CSEIT19523>