

# **G. H. Raisoni College of Engineering**

(An Autonomous Institute under UGC Act 1956 & Affiliated to RTM Nagpur University)

## **Department of First Year Engineering**



Session:2017-18

### **MINI MODEL**

**THEME:- Clean Environment**

**TOPIC:- SANITATION SYSTEM IN TRAIN**

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**SUBJECT TEACHER:- Prof. Sampada Wazalwar**

# **SANITATION SYSTEM IN RAILWAYS**

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**SECTION:- K**

**ABSTRACT:-** In our country if we look at the sanitation system, they are very poor. Especially if we take a brief view at sanitation system in railways they are very poor. The railways are still using the open sanitation where the human waste is directly being disposed on the railway tracks. Many times whenever we are travelling by trains we are being instructed not to use the toilets, when the train is stopped on the railway station. But, people never follow the instruction given by railway authorities. Every time we visit the railway station we can smell the railway station like full of rotten eggs. This will create an unhygienic environment near to the root. Due to this smell and unhygienic environment the workers, working on the stations are suffering from various diseases.

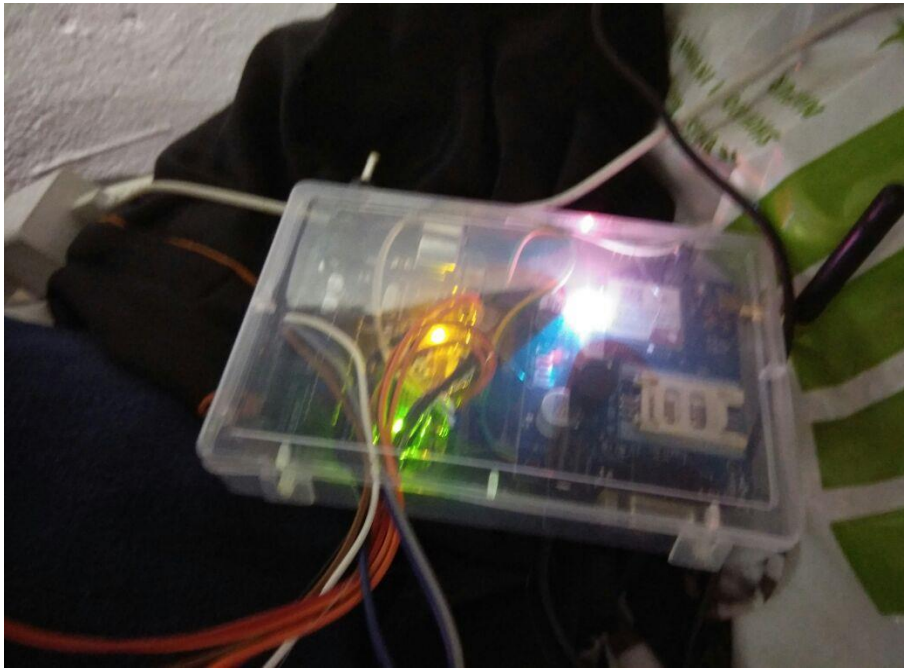
**INTRODUCTION:-** To reduce this unhygienic environment we have made a basic level device by using Arduino UNO. We are just converting the existing sanitation system into the automated sanitation system. In this project we are using a steel tank, Arduino UNO, GSM, obstacle sensor, wires etc. In India, these systems are available but only in special trains like Deccan Odyssey, Golden Palace, etc. We are here trying to make a low cost project.

**WORKING:-** Automated sanitation system works with the help of Arduino UNO and GSM system. There will be total 4 tanks in a bogie. Only one arduino will be required to control 2 toilets at a time with one GSM. If a single toilet tank gets filled up then the obstacle sensor will detect the level of the tank. After the delay of 5 sec a message will be sent to the nearest station. Sanitary cleaner where the cleaner will have to use a vacuum cleaner to clean the tank. All he will have to do is attach the vacuum cleaner opening to the tank outlet. All the waste will be sucked inside the vacuum cleaner tank & the tank will be ready for use again. When both the tanks of the bogie get filled up then the a common message will be sent to the cleaner about both tanks at a time.

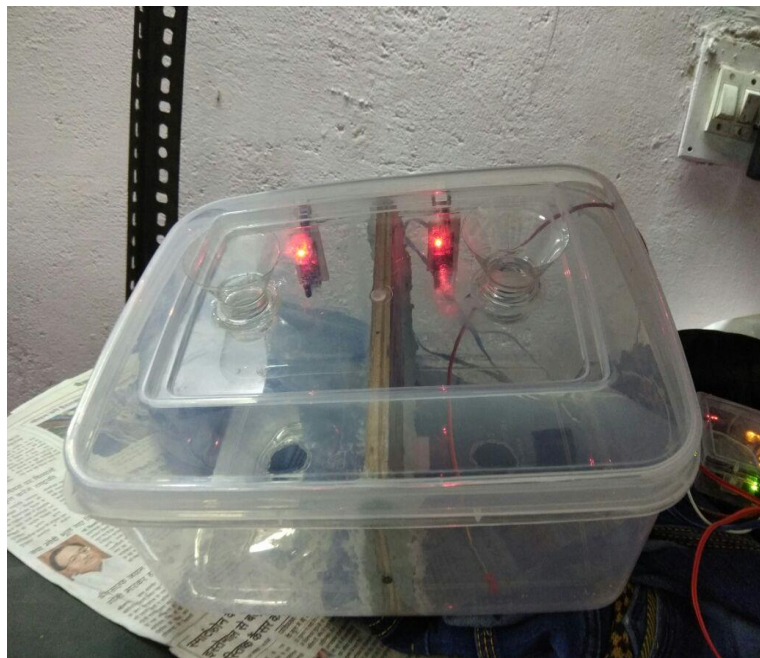
**ADVANTAGES:-**

1. This system will reduce the dirty ness on the railway tracks.
2. The cleaners will not have to clean the railway tracks manually by sweeping every railway track.
3. The cleanliness will increase on the railway station with time.
4. Picture of platform will change.
5. Workers will not lose their job due to the use of technology, this will only to make their lifestyle easier.

# **PHOTOGRAPHS OF THE WORKING MODEL**



**Arduino UNO and GSM both in working condition.**

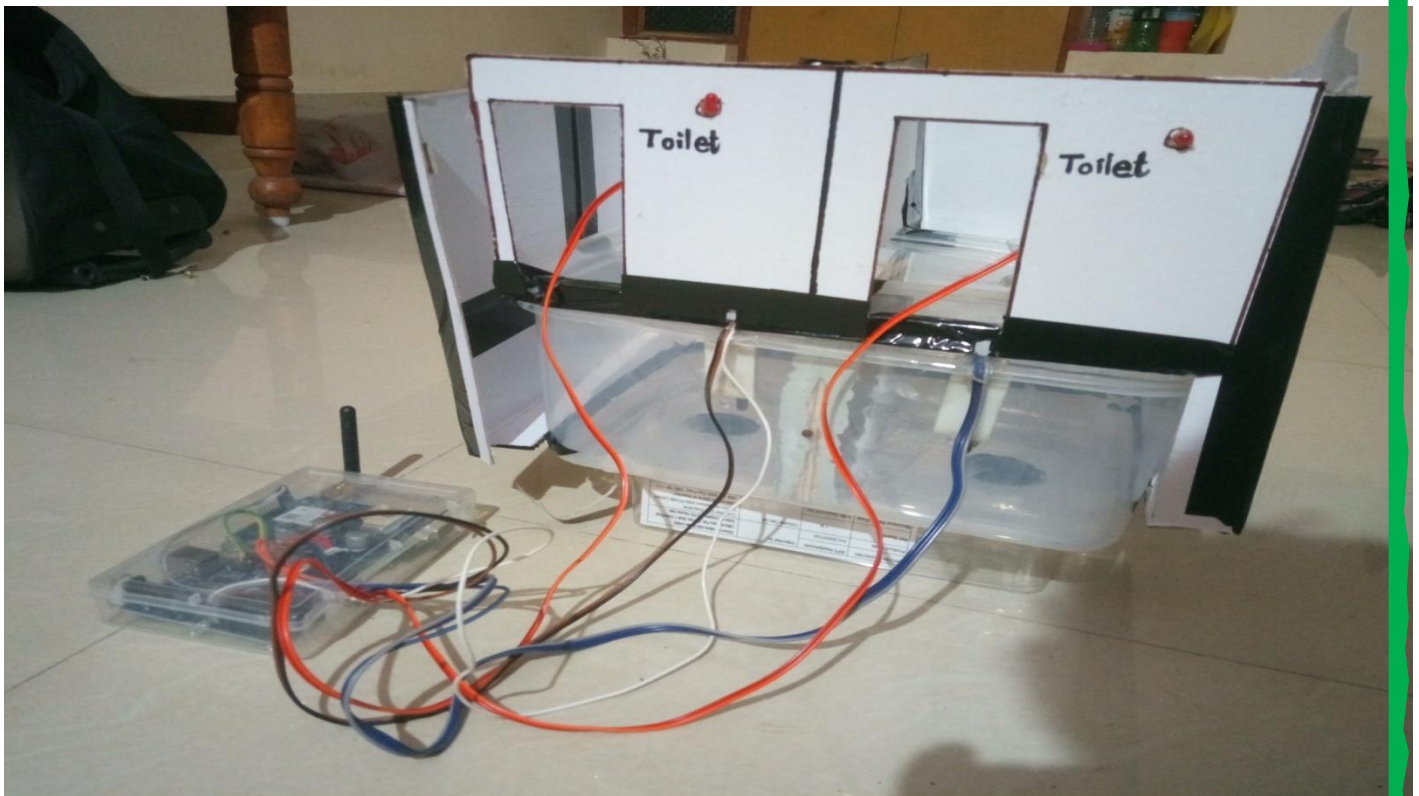


**Obstacle sensor in working condition.**

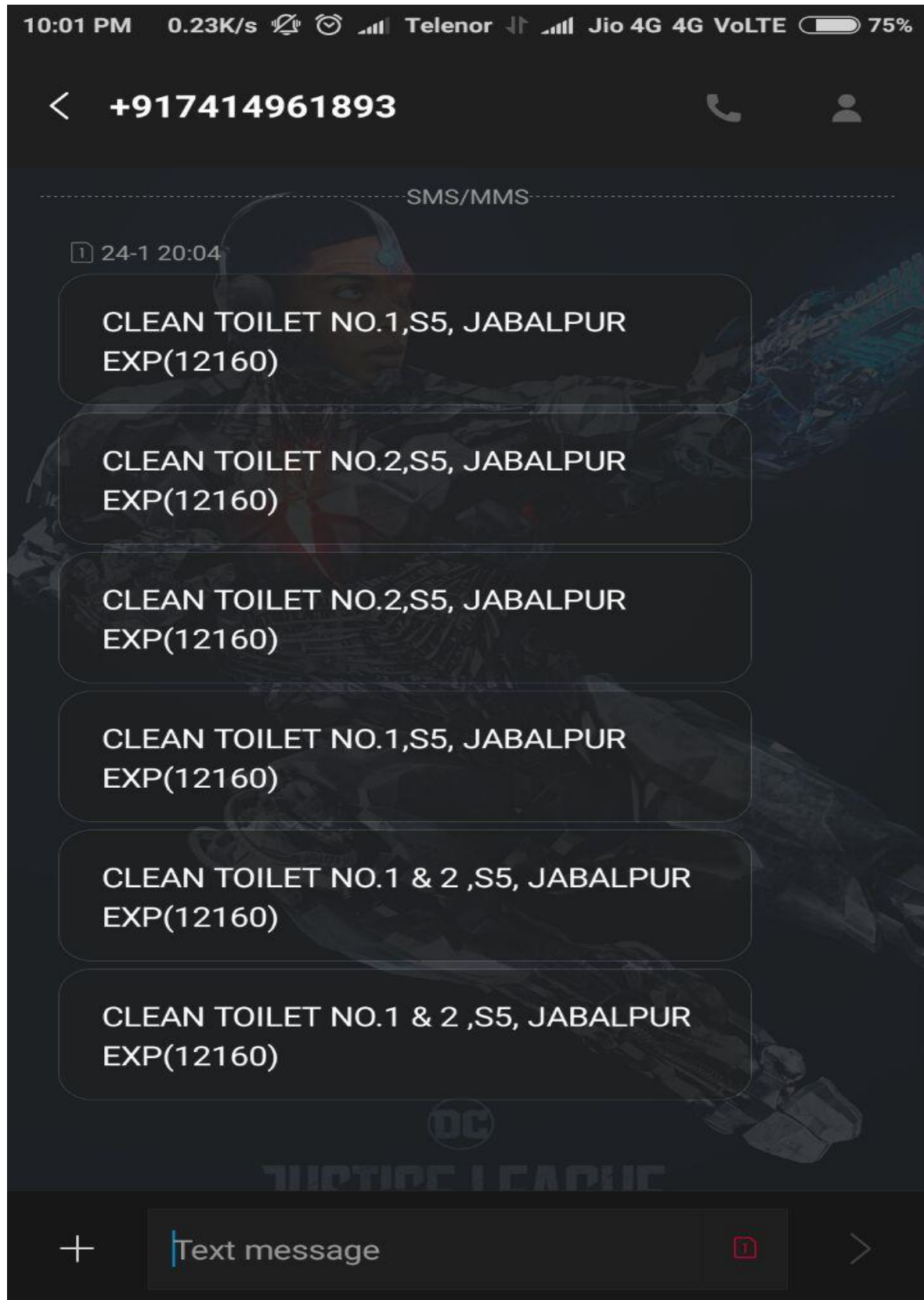




**Waste inlet.**



**Overall Setup of our project.**



**The messages which are being sent the cleaner after the tanks are filled up.**