

Economical Water Efficient Electrified Toilet

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Abstract: Now days in countries like India where electricity is available in most of the areas but water is not available in sufficient amount like Rajasthan, Vidarbha and Marathwada in Maharashtra. So we can use Electrified Water Efficient Electrified Toilet. These types of toilets use very less amount of water so that helps in conservation of water. Another motive behind manufacturing this type of toilet is to make portable toilets for handicapped people pregnant women as well as person suffering from accident injuries. In this project we can reduce plastic waste because in this system commode is made up of plastic. So we can make reuse of abandoned plastic to make our system. This will help us in solid waste management of plastic. This system has very simple mechanism to work. Waste is provided up to burner or furnace by use of Archimedes' screw principle. Then it is burn in furnace and forms ash which can be used as fertilizer.

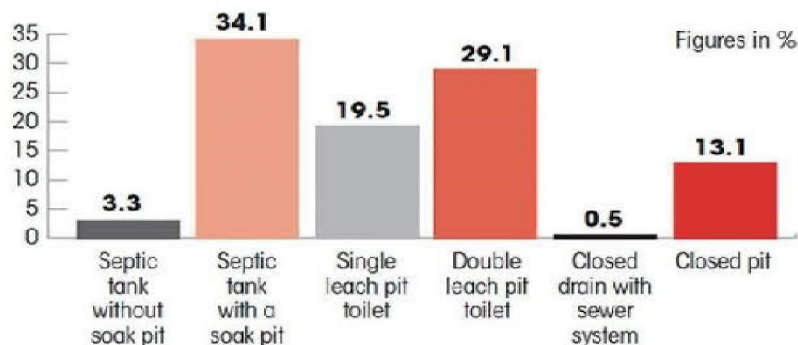
Keywords: Excreta, Commode, Furnace, Electrified

I. INTRODUCTION

Water is a first need for anyone and water conservation is the hot topic today. Lot of water is being wasted every day in toilets so something really has to do for conservation of this water. Also people from rural India do not use toilets due to the lack of water as well as economic reasons. So we come with an idea of Economical Water Efficient Electrified Toilet for the conservation of water in toilets which is being wasted. These types of toilets can be mobile so that they can be relocated according to requirements. The technology used in electric water less toilet is electric burner or furnace for disposal of human waste. In villages old people feel uncomfortable to use toilet in house. In Indian villages people use open spaces and river banks for toilet. So in these cases such type of toilet can be incorporated. So this will helps in Government of India's "Swachha Bharat Abhiyan" and "Clean Ganga Mission". This water less toilet helps India in conservation of water. Such type of toilet will play key role in areas where there is huge scarcity of water like Rajasthan as well as draught conditions.

How do they know?

National Annual Rural Sanitation Survey says almost all households in rural India practice safe disposal of excreta



Source: National Annual Rural Sanitation Survey (NARSS), Round-2 (2018-19)

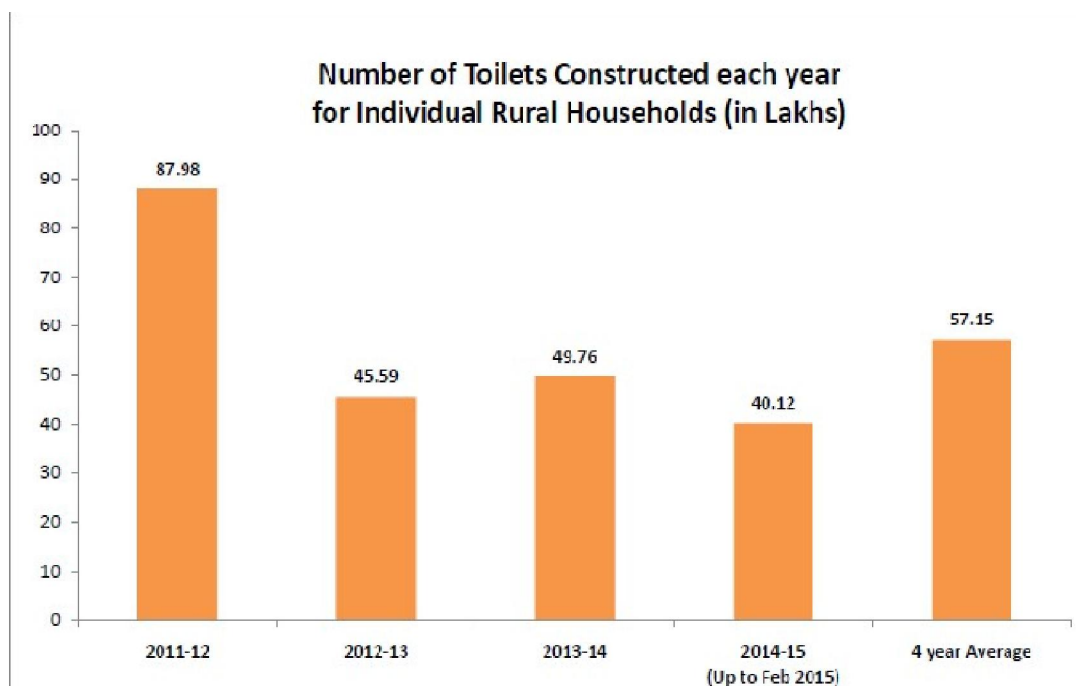


Figure 1: Literature survey

II. DESCRIPTION OF PROJECT

2.1 Working

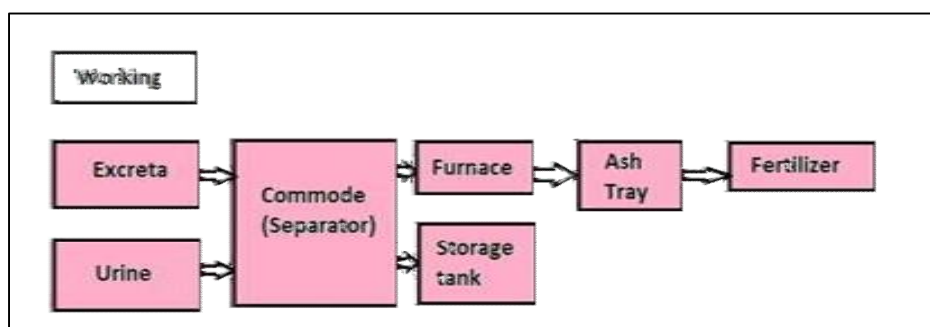


Figure 2: Working of Proposed System

The term waste less toilet itself tells that no/less use of water instead using electricity for waste disposal. Electric technology is used for the working of toilet. The technology used in this toilet is electric furnace or burner to convert human waste to ash. This ash we can use for fertilizer in farms. In this toilet commode is made up of plastic so it will help in solid waste management. This is one step towards clean India and solid waste disposal. This system has very simple mechanism to use. Waste is transferred to burner or furnace by use of Archimedes' screw principle, then burner or furnaces do its work to burn ash and converting to ash. Whenever waste is given as input to the toilet, a pressure valve is used to flush. The flush uses minimum amount of water. There is a separator in the toilet having a handle which is used urine and excreta from waste. Now urine is stored in storage tank and excreta is burnt and ash is used as a fertilizer.

2.2 Block Diagram

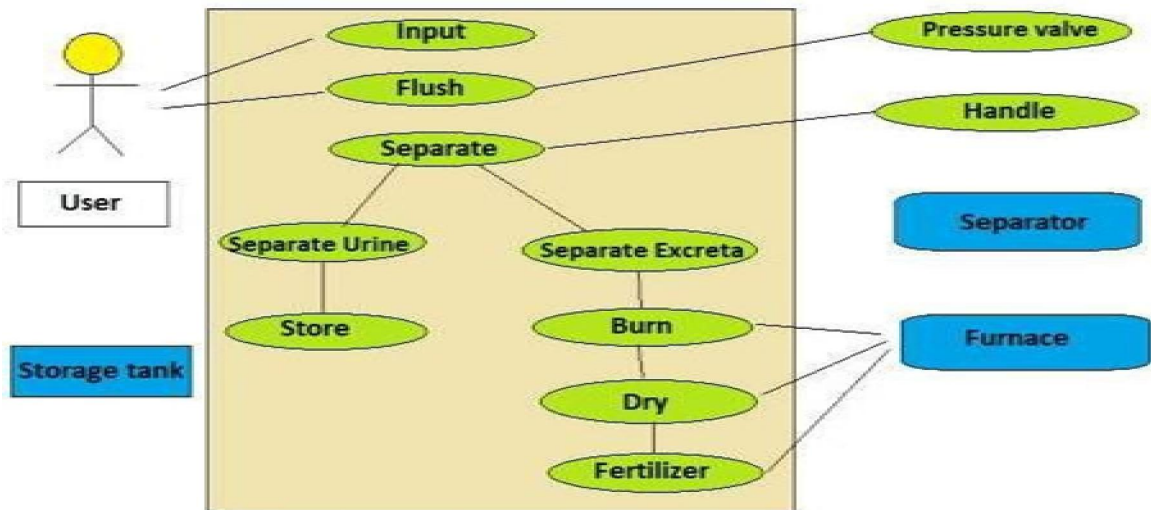


Figure 3: Block diagram of the proposed system

2.2 Design

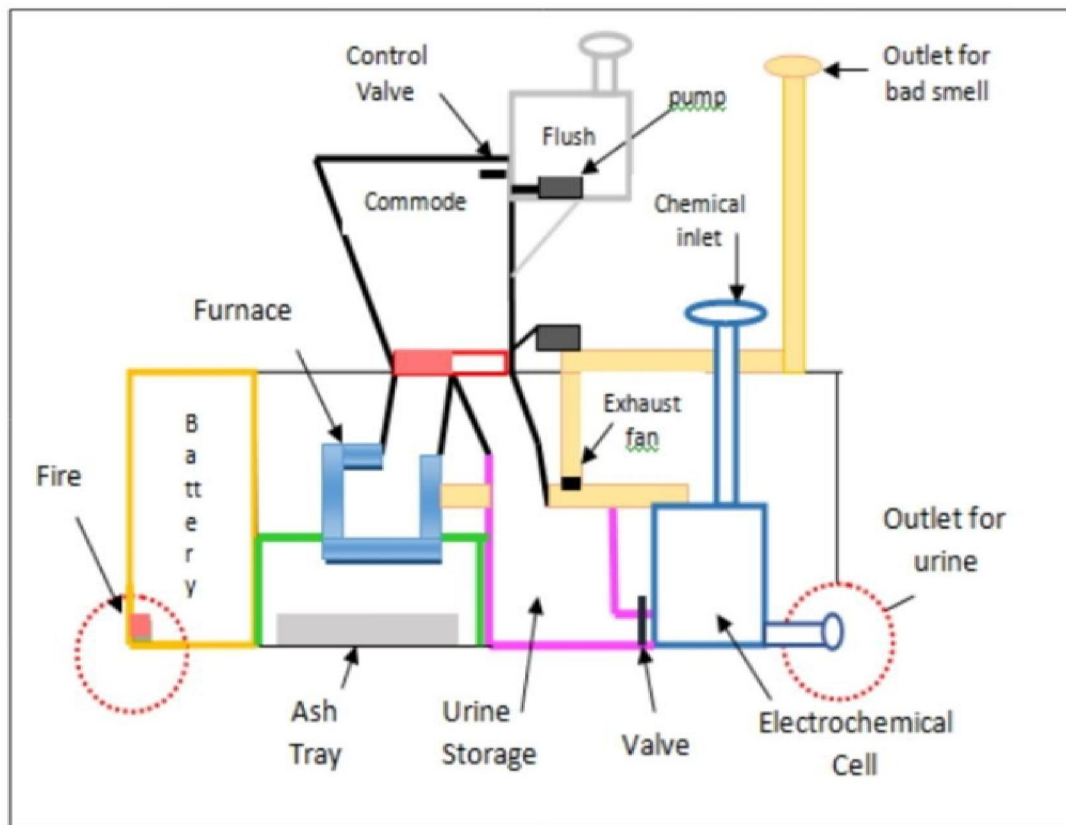


Figure 4: Design of Economical Water Efficient Electrified Ecosan Toilet

In Fig. 4. various components are arranged in such manner that to form our toilet. The base of toilet (Product) i.e., 90x45x45 cm (lxbxh), which is made up of iron rods and covered with wooden blocks. Inside the base system furnace, ash tray, urine storage tank, exhaust fan, etc are fitted. Upper part of toilet i.e., commode (size 45x20 cm) which is made up of waste plastic material. Behind the commode there is flush water tank to use less water for cleaning purpose.

Overall look of prototype product is shown in above prototype figure. Beside the commode we use manual handle to operate a separation operation of urine and feces. To increase the efficiency of furnace we perform separation of urine and feces. Also there is exhaust fan next to furnace for smell outlet via outlet pipe for smell shown in figure.

III. RESULT

1. It saves 12 to 13 liters of water per use.
2. Commode is made up of waste plastic hence useful in plastic recycling.
3. The system is portable so physically enabled people can also use.
4. Less sanitation area required.
5. Low cost.
6. It is one step towards making awareness of toilet.
7. This type of toilet can be cheaper than conventional toilets.
8. Natural fertilizer can also be made from human waste by this toilet.

IV. CONCLUSION

In market there are toilets but they are expensive and poor people cannot afford them. But our project is economical, ecological, and efficient. This project can be made in low cost by reusing of waste plastic. It uses very less amount of water thus helps in water conservation.

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