

SMART URINE SHED

We all know the scenario of public urine sheds in India. In it, every user has to turn the flush lever knob or use same bucket and cup. Also some of them may not flush it. In the former scenario, since everyone is touching the same knob, it can be a source of spreading contagious diseases like cholera, covid-19 etc. Sharing of same bucket and cup is not advisable in the present covid-19 situation. Also every time when we use the flush, a lot of water is wasted. In latter, urine shed become stinky. In posh hotels and all we can see electronic control systems to solve this problem. It requires a lot of sensors and some control mechanisms which works in electricity. So running cost and maintenance cost are high which makes it unsuitable for public comfort stations, urine sheds in hospitals, schools, railway stations and bus stands.

PROPOSED SYSTEM

To overcome the above mentioned problems in the highly rush public urine sheds, I am proposing a smart arrangement which eliminates the need for touching the flush knob, sharing of cup, leakage in flush tank etc. It also minimizes the water usage that too without using a single sensor or any electronic system and in low cost. And water tank can be placed even underground.

Mainly it consist of two parts. First part is a mechanism for pouring/spraying some water in the toilet bowl of the urine shed every time the door opens and closes. That is, when a person enters and leaves the urine shed after use. it is made possible by using a mechanical arrangement using two one way valves, a piston with a cylinder, which connected to the door of the urine shed. When a person opens the door through a rotary crank pulls the water in to the cylinder, through an unidirectional valve, where the piston is moving, when the door closes, the piston moves in the opposite direction which creates high pressure in the cylinder.

The result is, water in the cylinder is pumped upwards with high pressure to the toilet bowl. The spraying of water in the toilet bowl on entering and leaving the person will keep the toilet hygiene and odourless. We are keeping the capacity of the toilet bowl to be large that the urine and the sprayed water of up to 10 persons can keep in the bowl before the complete flushing happens.

The second part is a simple arrangement implemented in the toilet bowl. A self starting siphon is arranged inside the bowl at a pre defined height so that when the water level reaches that height it automatically drains completely. Since 5 to 10 users can use the toilet before complete flushing happens, water usage can be minimized.

ADVANTAGES

- It is a complete automatic system.
- It does not use any sensor or electricity.
- User does not need to touch the flush knob or share bucket, which prevents spreading of diseases
- Since water is pumped into the bowl using the above said mechanical arrangement, water tank need not be placed over concrete roofing or over large steel stress work
- Water usage is minimal
- It is cost effective

Our proposed system works efficiently and reliably when the frequency of usage is very high so as the number of users. It will be a mile stone in the Swachh Bharath abhiyaan in the post covid-19 scenario.