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# AUTOMATED TRAIN TOILET SEWERAGE DISPOSAL SYSTEM - A COST-EFFECTIVE ALTERNATIVE TO BIO-TOILETS

Relevant for: Science & Technology | Topic: Science and Technology- developments and their applications and effects in everyday life

An automated technology for collection of toilet waste which is easy to maintain and seven times cheaper alternative to the bio-toilets, developed by an Indian scientist, can be used to maintain the toilet system of the Indian Railways.

Existing Bio toilets use anaerobic bacteria for converting human waste to gas, but that bacteria can't decompose plastic and cloth materials dumped into toilets by passengers. Hence maintenance and removing of such non decomposed materials inside the tank is difficult.

The technology developed by Dr. R.V. Krishnaiah from Chebrolu Engineering Collegeisan automated system for collection of toilet waste from running trains and segregation of different materials and processing into usable things.

The technology developed with support from the Advanced Manufacturing Technologies programme of the Department of Science & Technology (DST), aligned with the 'Make in India' initiative has been granted five National patents and is in the testing phase.

The automated system consists of three simple steps--the septic tank (which is placed under the track, i.e., train line) top cover gets opened when train approaches to the septic tank place by using Radio Frequency Identification (RFID) sensor and reader placed at Engine and septic tank position respectively, sewerage material in toilet tanks is dropped into the septic tank when they are mutually synchronized, and finally the septic tank cover gets closed when train departs away from it.

The collected sewerage material from train toilets is segregated such that human waste is stored in one tank, and other materials such as plastic materials, cloth materials, and so on are stored in another tank. The human waste is further processed separately to convert into usable material. The plastic and cloth materials are processed separately.

This technology has been developed targeting the Indian Railways specifically with the aim of cost reduction and to obviate the necessity of time-consuming anaerobic bacteria generation. In contrast with Bio toilets which cost one lakh per unit, the new technology brings down the cost to Fifteen thousand rupees only. Dr. R.V. Krishnaiah has tied up with MTE Industries for further upscale of this technology.

*For more details, Dr. R.V.Krishnaiah(9951222268, r.v.krishnaiah@gmail.com) can be contacted.*


*Figure: The Front View of the System*

SS/RKP

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