

Design and Construction of Smart public sanitation system



Abstract

As the world population is increasing, the safety and health issue is one of the most alarming sectors. Our project aim is to develop of a smart public sanitation system for health safety. It means that –“as if, for flushing we need to press button”, but in government or public toilets we found that; a lot of people uses public toilet for their regular purpose. But most of them are not pressed the flush after using the toilet. The number of people is out of habitation and they are not conscious about their health. Due to this mind set, lot of dirty waste is kept itself in those toilets and slowly from those toilets various viruses and bacteria get released in the nearby area which is responsible for various types of diseases. More ever, People living in the area surrounding the toilets start suffering from various diseases. This takes place only because of improper sanitation and inhabitation. As a solution of this problem, first time for ever in the world we have generated an idea to design and construction of a smart health safety system for public sanitation. Thousands of life will be safe from toilet hygienic and billions of dollars will be saved by proper implementation of this project. In this system when a user entered into the toilet, the system will be activated and the door will be locked automatically. After using the toilet, if the users don't use flash he/she will not be able to come out because door lock mechanism based on flushing system. When he/ she will use the flash then the system will be re-activated and the door will be open. As this project is represented as a smart technological sanitation system so that we have added some advanced features. We have used automatic day- night light control system where as a sensor will take data from sunshine and light will be operated according to this data. In an addition we also used water level indicator to measure water level in the flush tank. We also used a smart dustbin which will be automatically operated. For an emergency situation user an emergency exit button have used and all output operational result will be send to the control room through some signals . After all, this initiative innovation can bring revolution for human being and be great achieve each and forever in the history of Bangladesh also other countries by proper implementation in public sanitation system. The aim of this project is to design and construct a smart sanitation system to improve human behavior using flush system and reduce toilet related diseases.

A sanitation technology is 'smart' when adapted to local conditions and changing environment. This paper describes the design and construction of a smart public sanitation system to create human behavior by using flash. The system has been constructed based on Artificial Intelligence using the Micro-controller series Arduino UNO. Push buttons has been used to operate servo mechanism for door lock operation to lock and unlock the door according to the user interface. This project has been designed with experimental methodology to fulfill the vision of sustainable world from third world countries. A smart dustbin has been used in the system. The dustbin is developed using ultrasonic sensor technology to operate the servomotor. To abate the electricity cost, automatic day light controlled sensor technology is also used. To make the system user friendly an emergency button has been also used for emergency exit. Moreover a water level indicator has been set up to measure the water level inside the flush tank and an alarming system has been also built to monitor the total process of this system. This is a revolutionary invent to ensure the health safety in public sanitation.

Keywords: AI, Sanitation, Health safety, Dustbin, Day-night light, Monitoring.

Publications

- “Robot Navigation For Blind People Using Multi Sensor”, International Journal of Scientific & Engineering Research (IJSER), ID: I0100691
- Jimmy Majumdar..et al, Navigation For Blind People using Stick Robot , Mechatronics (1st Edition),MTE_ WUB on April 2017.
- Jimmy..et al, Autonomous AI Based Robot Navigation for Smart Fish Catching Process Based on Embalmed System, MIT License github, Jimmy Majumder, 2016

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Biography

Jimmy Majumder has successfully completed his graduation as B.Sc in Mechatronics Engineering at World University of Bangladesh in 2018. He has received Jr. Fellow from SARID and also doing research at NASA's space robotics project. He is the founder president of Bangladesh Advance Robotics Research Center. He is working with UNDP as a young leader applicant. Also he has many national- international achievement inducing 40+ robotics project, and 20+ awards, and 30+ media coverage. He is the chief of the governing body at The Robotics Society of Bangladesh. Moreover, he is responsible as an advisor of Bangladesh Science Society, and mentor of Startup Business in Bangladesh. However, his research direction is in Robotics and advance technology.

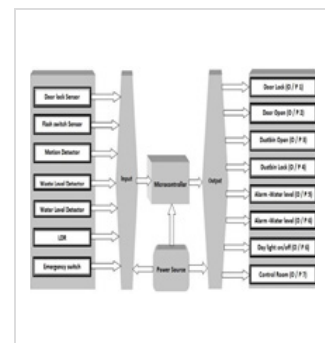


Figure 1: Block Diagram of Smart Public Sanitation System

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