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Amind Wescom

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Abstract: ***The paper mainly focuses on reducing the space occupied by having both Indian style commode and a western style commode and to help elder people having knee pain and back pain to easily use the commode. By automatically adjusting the height of the commode based on the person's need can help to combine the two separate toilets thus reducing the space needed for two different toilets. Now a days people are moving towards western style rural people difficult to use western style, similarly older people are finding difficult to use Indian style commode due to knee problems. Thus two different types of commodes are necessary but having two separate toilets for different types in cities like Chennai, Mumbai, and other metro cities is difficult. So to reduce the space occupied by the toilets and to use it in a efficient way and to help the elder people to easily use the toilet. the AMIND WESCOM(Automated indo-western commode) will be an efficient one.***

Keywords **: *Arduino, Arthritis, Height adjustment, Indian***

I. INTRODUCTION

Every people in the world are interested and eagerly waiting for the upgradation in every aspects of life. Likes of smart cars , smart homes , artificial intelligence, etc., are getting more and more investments, are we interested in upgrading the things in the back end? Are we showing more interest in upgrading the back-end things? yeah just literally backside…… the toilets and commode. Of course, toilets are getting upgraded but not more than upgrading functionality and aesthetics. Due to modern lifestyle, most of the Indian population is suffering from diseases like arthritis, back pain, knee pain, and they are finding difficult to use western commode. Since most of the population is not comfortable with western commode. Some people also need Indian style commode, one cannot imagine two separate toilets to be built in a dense area. To overcome all the issues stated above a upgraded commode is designed in such a way that it can be used as both Indian and western style commode by all aged persons in a small area, this means that the AMIND WESCOM acts as a good option for people living in small houses were two separate toilets are taking more awkward spaces.

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II. LITERATURE SURVEY

The idea for the project was erected from the papers that were glimpsed is listed below. K. S. Shankar[1] proposed a new technique that the commode system was fully automated & it will reduce the dirt in public toilet. J Bennett and WC Bradley[2] introduced a portable commode having lifting Seat assisted with spring, a lightweight Self- Supporting Stand, a Seat hinged to the frame and a two pneumatic Springs for lifting the Seat to an elevated position. ML McGuire[3] proposed a commode seat assembly which can be hydraulically operated for lowering the commode which helps a handicapped person from a standing position to a seated position through a natural range of movement. LD Svedelius[4] developed an approach that says a commode seat can be adjusted with the help of foot movement of the person. CD Peterson[5] proposed that the wheel chair has a seat that can be raised or lowered or tilted with the help of rotatable tube and lifting mechanism. LJ Wang[6] introduced the commode seat for a rollator, incorporating there in a collapsible telescopic splash guard.

III. RELATED PRODUCT

A. Wall Mounted Commode

As the commode is suspended in the wall, it makes the problem of cleaning under and around the toilet as simple as possible, thanks to the suspended design of the commode which makes the cleaning easier. In addition to the suspended design, sides of many wall hung toilets in such a way that helps in very easy cleaning with no difficulty in accessing nooks and corners which may be hard to reach with cleaning products. The design of the toilet also lends itself to a better use of space. As the toilet is generally not very bulky, it makes a good space-saver and can be placed closer to other furniture, a shower enclosure or a sink. The fact that the wall hung toilet is not cluttering up space and that it is easily slotted in next to other bathroom fittings also creates the illusion of a more spacious area.
The disadvantages of wall hung toilets include the fact that as they are suspended, they can require a concealed framework to support them, which can be difficult to install.

Creating the space for the frame and for the concealed cistern can mean that more than one trade is required, whereas installation of a conventional toilet may only require plumbing skills.

B. Composting Toilet

A composting commode is a type of dry toilet(waterless) that treats human excreta by a biological process called composting. The composting is the process that de -composite the organic matter and turns human excretion into compost-like material with less harmful pathogens but does not destroy all pathogens.

In many composting toilet designs, carbon additives such as sawdust, coconut coir, or peat moss is added after each use. This practice creates air pockets in the human excreta to promote aerobic decomposition. This also improves the carbon-to-nitrogen ratio and reduces potential odor. Longer the composting time more the pathogens die off. After the composting process the compost can also be moved to another storage system which is another composting step to allow more time for mesophilic composting to further reduce pathogens.

C. Anglo Indian Type Toilet

Anglo – Indian Type toilet is a combination of squatting pan Indian and western water closet style toilets. You can squat in this toilet as you like. These types of toilets are brought when people get confused about the type of toilet they want to go with the squatting or western one. This toilet is also called as a combination toilet and universal toilet.

D. Commode Chairs

Commode chairs are an essential device for many people who have severe mobility problems. A commode chair is a type of chair used by someone mostly elder people who needs others help for using the toilet due to illness, injury or disability. Some commode chairs are designed to have wheels to allow easy transport to the bathroom or shower. Most of the commode chairs have a removable pail and flip- back armrests. They can also be placed in a bathroom or shower to provide additional support and function. A commode chair can be also called as movable toilet that does not use water and easy to port. It looks like a chair with a toilet seat and has a bucket or container underneath. The container can be removed for cleaning after the commode is used. A commode can be placed beside the bed if a person cannot get to the bathroom. Every portable commode seat designed for easy removal and cleaning. In simple words commode chair is a mobile toilet that can be placed in your vicinity and is often used by those who are unable to cover the distance to the bathroom due to frailty or any other disease. The vessel for waste attached to the commode is removable and can be easily emptied

IV. PROPOSED MODEL

The implantation of automatic indo-western commode is proposed with the conversion of the commode with the help of metal jack motor. The fabrication has been done by the welding process. The product purpose will help elder people who are unable to use Indian styles toilets. The product uses the compressed air to push the piston and to adjust the commode height. The power supply can be controlled through a switch to avoid the unwanted usage. The user can operate the commode manually with the help of two-way switch if needed. Ultrasonic sensors will be placed at the door to sense the height of the person and based on the medical parameters height can be adjusted. The Flexible excretion tube can be used to adjust with the height modification

V. IMPLEMENTATION

The Fig 1 represents the block diagram of the commode. When the user enters the cubicle after turning the switch provided at the entrance of the cubicle to ON condition, the ultrasonic sensors will detect the height of the person. The Detected value will be send to the Arduino placed at the commode with the help of transceivers. Based on the value the jack will rise to the required height which is predefined based on the medical parameters. Thereby increasing the height of the commode attached to the jack.

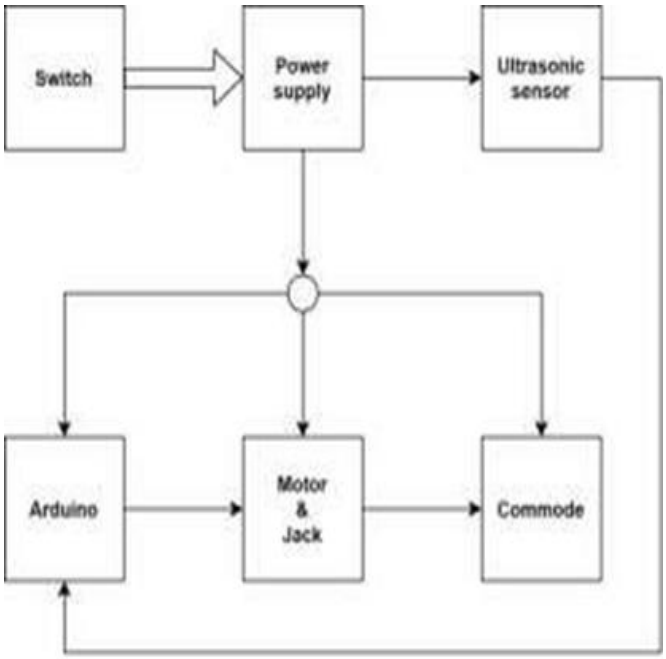

Fig 1 Block Diagram

VI. WORK FLOW

The systematic work flow of the commode can be pictorially represented using a flowchart shown in Fig 2. The person enters the cubicle the sensor detects while entering. Initially the commode is in Indian style. Once the sensor detected, the commode automatically rises to Western style. The jack present below the commode helps to increases and decrease the height of the commode. While entering the jack automatically lifts the commode and position it in Western style. After the exit of the person, the sensor senses and then the jack moves downward, and the commode will come to its original stage to Indian style. By this way, the height of the commode can be adjusted.

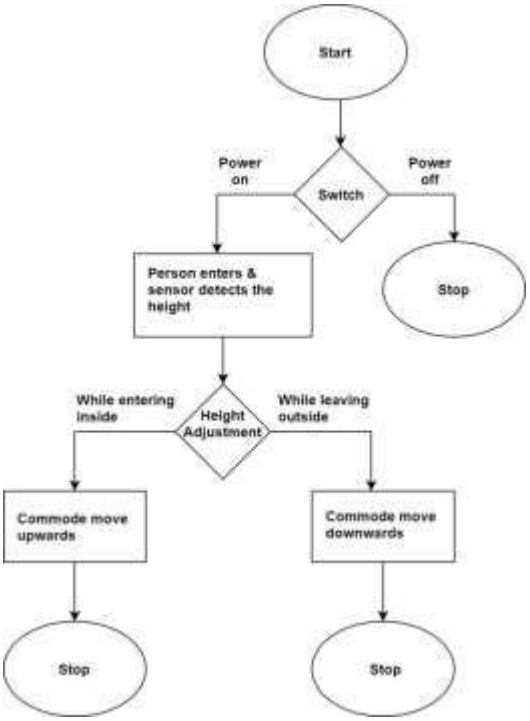

Fig 2 Work Flow

VII. HEIGHT DETECTION

The Ultrasonic sensor used for the height adjustment is shown in Fig 3. This sensor is interfaced with arduino to determine the height of the person entering the commode. The value is sent to arduino for the delay process for the amount of motor should be rotated to achieve the desired height.

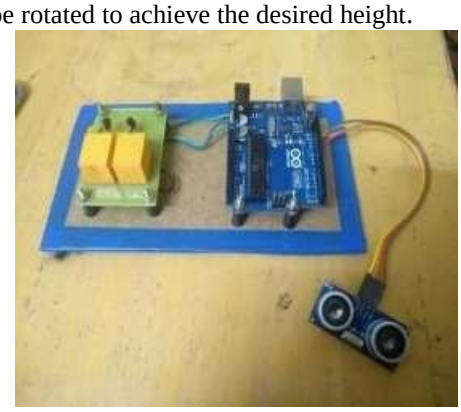

Fig 3 Height Detection

VIII. ADVANTAGES

- The nerves system that control the prostate, bladder, and uterus can be protected from becoming over stretched that may result in severe damage
- Securely seals the ileocecal valve, between the colon and the small intestine. In the conventional sitting position, this valve is unsupported and often leaks during an evacuation, contaminating the small intestine.
- Relaxes the puborectalis muscle which normally chokes the rectum in order to maintain continence.
- A highly effective, non-invasive treatment for haemorrhoids, as shown by published clinical research.
- Makes elimination of human excretion faster, easier & more complete.

IX. CONCLUSION

Thus the prototype for the product is designed and implemented with the automated height adjustment is shown in Fig 4. The model is designed as per the description said above. By implementing this type of automatic Indo-western commode the problems faced by the elder people can be avoided and proper usage of western toilets (based on the proper sitting positions)can be practiced. And by adjusting the height of the commode, space needed for two separate toilets can be reduced and the that space can be used in a effective way.

Fig 4 AMIND WESCOM Prototype

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