Redesign and Constructing of Automatic Height Sink Washer for Elementary School Children Usage

By

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STATEMENT BY THE AUTHOR

I hereby declare that this submission is my own work and to the best of my knowledge, it contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree or diploma at any educational institution, except where due acknowledgement is made in the thesis.

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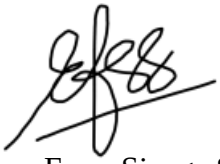

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ABSTRACT

REDESIGN AND CONSTRUCTING OF AUTOMATIC HEIGHT SINK WASHER FOR ELEMENTARY SCHOOL CHILDREN USAGE

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It is essential to educate primary school children about hygiene knowledge, including the proper way of washing hands with soap. However, a challenge arises when the height of the sink is fixed, causing discomfort for children with different heights than others, who need to adjust themselves. To address this issue, an automatic height sink washer can be developed where the height of the sink can be adjusted automatically to facilitate comfortable handwashing for all children. In this newer version model from the last iteration, an automatic hand washing cycle is also applied to improve its usage and create more attraction for young children. The working principle of the model involves measuring the user's height using an ultrasonic sensor to determine the required sink height from a calculated data, then the system will move the sink automatically into the user's hand height, therefore the users can wash their hands comfortably. The implementation of this working system utilizes a lead screw mechanism to move the sink upward and downward with linear guide as support. Anthropometric data is used in this work to support the calculation for the required height. To maximize the efficiency usage and safety aspect of the model, improvements on the mechanical, electrical, and programming are applied. In conclusion, for this work

the automatic height sink with the newer components is safer and easier to use for children, increasing the hygiene level for the younger generation.

Keywords: Automatic hand washer, Sink, Ultrasonic, Lead screw, Linear guide, Washing hand, Anthropometric, Children

DEDICATION

I dedicate this work for God, my family, my advisors,

And lastly for the future of the country that I loved, Indonesia.

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