

## ABSTRACT

Parents have an important role in shaping the character and development of children, including physical health. Maintenance of dental and oral health is one of the efforts to improve health. Busy parents often make children neglect to brush their teeth, causing children to get used to not brushing their teeth. In addition, the difficulty of removing toothpaste from the container often makes the toothpaste fall to the floor.

Technological advances can be used to make automatic tools that simplify the process of removing toothpaste. This study develops the use of a toothpaste dispenser so that it can dispense toothpaste automatically. The implementation of the HCR SO-4 sensor which is connected to the Arduino Nano is used to complete the components of the manufacturing process of this tool. The servo acts as an executor of the lever so that the toothpaste can come out automatically. This tool is equipped with OLED as a monitoring tool for brushing children's teeth, research was also carried out on 15 children to find out differences in the habits of brushing their teeth before and after the tool was used.

The results of this study obtained an increase of 40% indicating that children no longer need parental assistance in removing toothpaste so that the process of brushing teeth can be done independently. The uneven surface of the toothbrush is one of the factors that the ultrasonic sensor gets an error rate of 12.82%. The delay in capturing objects on the sensor also affects the activation of other components, resulting in a delay of 2.20 seconds at a distance of 4cm. Servo rotation is optimized by 180° to maximize pull on the dispenser lever. Toothpaste produced in one pull of the lever as much as 2 grams.

**Keywords:** *Parents, Children, Ultrasonic Sensor HCR SO-4, Arduino Nano, Servo*