



**DESIGN AND FABRICATION OF ELECTRICALLY OPERATED MISWAK  
TOOTHBRUSH**

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“I declared that this thesis is the result of my own work except the ideas and summaries which I have declared their sources. The thesis has not been accepted for any degree and is not currently submitted in candidature of any degree.”

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## ABSTRACT

Miswak, a teeth cleaning twig made from *Salvadora Persica* tree (known as *arak* in Arab), has been used by human since as early as 3500 Before Century. Several studies had shown uses of Miswak as a teeth-cleaning tool has prevented dental problems and other oral health efficiently. To date, Miswak is generally been used in a traditional way in its original form. It causes an ergonomic problem for users due to the technique of holding the Miswak and difficulty in reaching the lingual surfaces of the dentition. A survey is conducted to gauge public responses on electrically operated toothbrush using Miswak as its bristle. Based on the responses, a prototype is designed and fabricated using a 3D printer. The inner circumference of the Miswak holder is made into hexagon shape to fit the Miswak stick. This is because the Miswak stick will expand when it is soaked with water and shrivels when it is dry. An electrically operated Miswak allows the user to adopt relaxing hand posture. It is also able to reach lingual part of the dentition. The final survey has been conducted to perceive the feedback of the innovation of electrically Miswak and it shows that the public was satisfied with the improvement of the product. The innovation of electrically operated Miswak will benefit current users and further attract new users.