

Toothcare: A Toothbrush Quality Identifying App Using Machine Learning and Image Processing

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Toothbrushes of varied qualities, designs and standards are globally available, yet majority of them do not conform to international standards. There is no proper guidance or awareness given for the people with this regard. So, generally people do not know to choose the suitable toothbrushes they need, when they require to replace the used toothbrush, and whether the existing toothbrush is suitable for use. Therefore, the Toothbrush Standard Monitoring App provides a solution for all the above mentioned issues. This app is capable to scan the user's toothbrush and identify its condition. Machine learning and one of image processing techniques, image classification are mainly used for development of the app. Android Studio, Java programming language and firebase are used as development platform, backend development language and database platform respectively. The main purpose of implementing this app is to improve the dental health of human beings with the help of modern technology, and this will be the very first such solution implemented, addressing the above-mentioned health and social issues. This app functions in order to make people aware about the quality of toothbrushes and the conditions, hence reducing dental health issues and acknowledging people regarding the time period when they need to replace the existing brush with a new one. Accordingly, the app suggests certified toothbrushes following the user's data, monitoring the quality and damaged capacity of the toothbrush using image processing and informs the user whether the toothbrush can further be used or needs to be replaced. For this process, a TensorFlow Lite model with 83.48% of accuracy has been developed.

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