6COSC023W – Final Project Report

SnoreHelp – A mobile application to analyze, track and record snoring and to predict Obstructive Sleep Apnea.

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Abstract

Snoring is a common sleep disorder encountered by middle aged group people, and is a symptom of Obstructive Sleep Apnea (OSA) which has become a major public health concern. Key problem here is the unawareness of snoring condition among people and the serious health illnesses it could lead to, if left untreated.

Snoring can be normal and not identified as a concern, but if the snorer has experienced choking, un-refreshed sleep, daytime fatigue or change of personality, then the snorer has a high chance of having life-threatening disease termed OSA. People worldwide are being affected by this disease.

OSA is usually tested using polysomnography in the laboratories. But higher concerns here are that this method is time consuming, inconvenient, expensive and often causes anxiety to the patients. Thus, this project aims to identify and analyze issues related to snoring and to design, develop and evaluate a mobile application for a target age group of 40 to 65 Sri Lankans, that would help to detect the snoring sound, provide recordings of each sessions and to predict OSA condition at an early stage in order to alleviate major health related consequences and development conditions of the syndrome.

An industrial survey was conducted through interview and questionnaire methods in order to gather requirements which will be used as a foundation to design and develop the solution using machine learning technology. The system has been evaluated with industrial experts gaining positive outcomes. Moreover, this paper will be concluding with future work recommendations for SnoreHelp solution.

Keywords - Snoring, Obstructive Sleep Apnea, Machine Learning, Polysomnography