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A Remote Health Companion for Provisioning the Possibility of Being Diagnosed with PCOS by Analyzing Lifestyle and Behavioral Data

A Dissertation By

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Abstract

Polycystic Ovarian Syndrome is a heterogeneous endocrine condition that affects most of the women in their childbearing age. According to the latest statistics, 5 – 10 % percent of the women develops this condition in their reproductive age. The hormone imbalance in the human body is considered as the main cause for getting diagnosed with this condition and still there is no proper cure was found. Late diagnosis and less care towards this condition leads to a situation of high medical complexities. Since the knowledge about PCOS among the society is low because of the severity and the less amount of diagnosis with this condition among the women population. But nowadays, the diagnosis count was increased because of the unhealthy lifestyle.

Number of research were conducted in the context of curing PCOS condition. According to them, early diagnosis of this condition and changes towards the current lifestyle may results in reducing the risk of further medical complexities. Also, it was identified that, even though the condition is occurring because of hormone imbalance, the unhealthy lifestyle and behaviors has a direct impact towards the clinical causes that triggers the diagnosis of the PCOS in women. But most of the women don't have much knowledge regarding this uprising health issue.

In this paper, a mobile based health companion application for PCOS is proposed. As the core functionality of this application, an ensemble learning based prediction model is introduced to measure the possibility of getting diagnosed with PCOS using only the lifestyle and behavioral risk factors of the user. Since the clinical risk factors are hard to obtain without advanced medical examinations, the scope of this project is defined to provide a solution that can predict the risk using factors which are easily obtainable. Along with a risk prediction feature, other sub features like, critical risk factor identification, medical health advises, monthly report based on historical data is also provided in the application.

Keywords: Polycystic Ovarian Syndrome, Ensemble Machine Learning, Multi-Layer Perceptron