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Feminine Health Application for detecting PCOS, PCOD and Providing Remedial Solution

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ABSTRACT: Polycystic Ovary Syndrome (PCOS) and Polycystic Ovary Disease (PCOD) is a very common endocrine and metabolic disorder with the involvement of both genetic and environmental factors. Although much has been clarified on its pathogenesis, diagnosis, clinical manifestations, and therapy, there are still areas of uncertainty. While 11-21% of women of reproductive age have PCOS around 75% women of reproductive age can have polycystic ovaries on ultra sound. In this paper early detection of PCOS and PCOD is done by calculating the number of percentages of having PCOD and PCOS. It also provides the lifestyle changes for PCOS and PCOD so women can treat it at home naturally. This research will help women to detect disease at early stage which can be help to prevent PCOD and PCOS.

KEYWORDS: PCOS, PCOD, BCI-brain computer interface , Machine learning.

I. INTRODUCTION

Poly-cystic Ovarian Syndrome(PCOS) and Poly- cystic Ovarian Disease(PCOD) is the most common disorder in women at their reproductive age. Its leading cause for infertility, gestational diabetes or pregnancy included high blood pressure and also leads to miscarriage and premature birth of child. In case of PCOD and PCOS women's ovaries produce many mature and immature eggs. Most of times this happen due to poor lifestyle, stress, obesity and hormonal imbalance. This are one of the most influential causes of PCOS and PCOD can leads to major chronic disease such as uterus cancer and also damage women's health physically as well as mentally. Therefore its worthy of attention to screen the PCOS and PCOD patients at primary stage to prevent serious damage to health from these diseases. Since stress is one of the noticeable symptoms of PCOD and PCOS. We are focusing on recognizing this disease by detecting emotional factors of women using Brain Computer Interface This paper mainly focuses on predicting PCOS and PCOD by analyzing data about symptoms using machine learning and to prevent measure causes and movement by providing remedial solutions.

II. LITERATURE REVIEW

This section provides a brief literature work on PCOS and PCOD .Table 1 summarizes literature survey. In the literature of PCOS and PCOD detection has been achieved using two different domain namely Machine learning and brain computer interface respectively. Poly cystic ovarian disease and syndrome is detected using linear regression algorithm of machine learning. EEG method of brain computer interface has used to compute the stress level and emotional factors.

Table 1.Summary Of Literature Review

Ref	Methods Used	Research Objective
1	Data-driven diagnosis of PCOD and PCOS.XZ	Diagnosis of PCOD and PCOS Using Machine Learning Algorithms.
2	Making Mobile Health Technologies to improve relevant knowledge & awareness about PCOD and PCOS	Mobile PCOD and PCOS Management and Awareness System.
3	Early Stage Detection And Prevention of PCOD & PCOS by analyzing provided data	Detection And Prediction System For PCOD & PCOS Using Machine Learning Techniques.
4	Implementation Techniques & Facilities Relevant to Brain Computer Interface	Brain Computer Interface Architecture & classification Approach.
5	Classify Stress on EEG features extractors using EEG techniques of BCI	A BCI for Classifying EEG correlates of chronic mental stress.

III. OVERVIEW AND METHODOLOGY

A. Existing system and its problems:

For most of the 20th century, PCOS was a poorly understood condition. Women with PCOS are often resistant to the biological effects of insulin and, as a consequence, may have high insulin levels. Women with PCOS are at risk for type 2 diabetes, high cholesterol, and high blood pressure. Obesity also appears to worsen the condition. The degree of obesity may vary by ethnicity. However, this estimate does not include treatment of the serious conditions associated with PCOS, that's why there is need to at least prevent this disease and provide basic remedies.

We need to develop a system which is used for women to observe their lifestyle changes and maintain their health. It is observed that polycystic ovary syndrome (PCOS) and polycystic ovary disorder (PCOD), a condition seen among the women of reproductive age is having a major influence in the cause of infertility. Most of the women don't go to hospitals because of shyness and other reasons. so, we are going to develop a system which will help women to identify the chances of having PCOD and PCOS and will provide them natural remedies and health diets according to their condition.

B. System Overview

Overall System design and domains consist of two parts. First one is of software development part including applications development for PCOS and PCOD and diseases detection using machine learning algorithm.. And second one is hardware part which helps to detect emotional factors including stress level using EEG sensors.
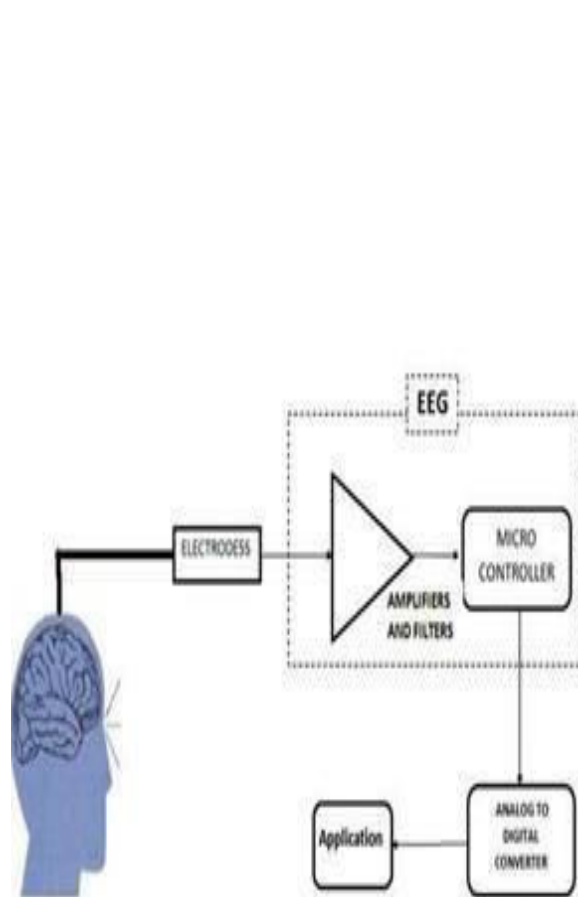

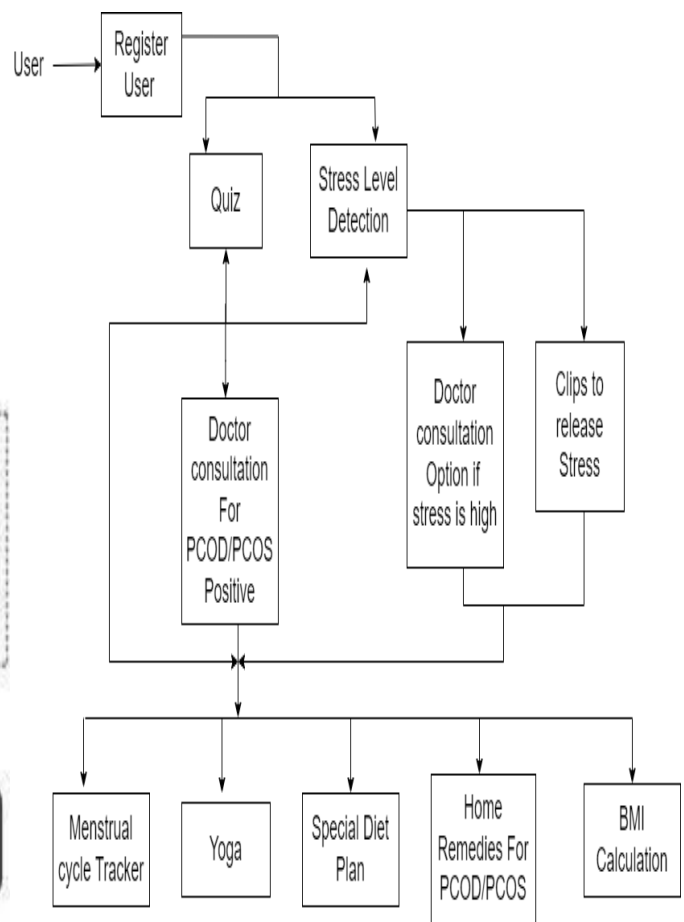Fig.1 System Architecture   Fig.2 Brain Computer Interface Architecture

This section briefly explains the experiments that are carried out to detect PCOD & PCOS using machine learning & BCI domain. For the experiments software part PHP ,HTML, CSS, JavaScript Python languages has been used & for the data set purpose MySQL database has used.
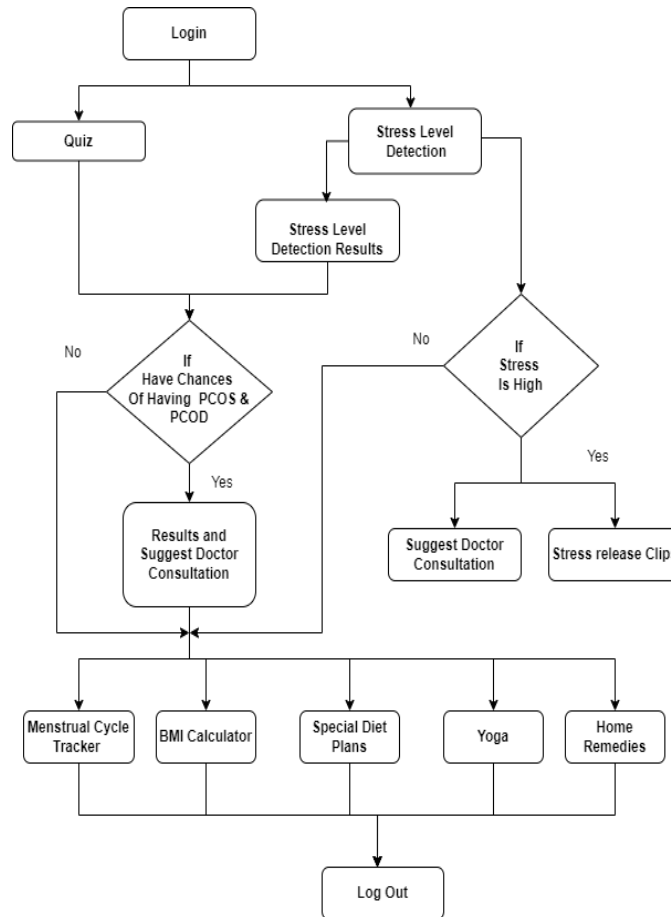
Fig.3 Data Flow Chart

Above mentioned figure explain about data flow in system . Data flow diagram mentioned above shows the actual working System.

IV. **RESULTS AND CONCLUSION**

This paper presents the overall diagnosis of PCOD and PCOS disease in women for this, diagnosis Brain Computer Interface and machine learning algorithms are applied. Brain Computer Interface (BCI)is applied to system to major the emotional behavioral imbalance(stress) of women and data set have provided according to their condition. Linear regression algorithm of machine learning is applied to learn about symptoms of women about their disease. According to extracted percentage of symptoms results are provided. As the future work ,medical industry's part can be includes example, doctor consultation for more accurate results.

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