Machine Learning Approaches On Polycystic Ovary Syndrome

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ABSTRACT

To recognize PCOS as early as possible, preferably when the first symptoms or irregularities appear. To ensure that the diagnosis of PCOS is accurate, as the symptoms of PCOS can overlap with other conditions.

Polycystic Ovary syndrome(PCOS) is a common endocrine disorder affecting individuals with ovaries characterized by a range of symptoms such as irregular menstrual cycles ,hormonal imbalances, and the presence of ovarian cysts. Early detection of PCOS is essential for timely intervention and management, as it can lead to various health complications, including infertility and increased risk of metabolic disorders.

Keywords: - *Machine Learning Algorithms, Polycystic Ovary Syndrome(PCOS). etc.*

1.INTRODUCTION:

Polycystic Ovary Syndrome (PCOS) is a multifaceted endocrine disorder affecting a significant portion of the female population, with estimates suggesting that as many as one in ten women of child bearingage may be affected.the intersection of healthcare and machine learning has paved the way for innovative approaches to medical diagnosis.

Machine learning algorithms, with their ability to discern complex patterns within vast datasets, offer promising avenue for enhancing the accuracy and timeliness of PCOS diagnoses. By leveraging machine learning, it is possible to delve deeper into the intricate interplay of various factors, from hormonal markers and genetic predispositions to lifestyle choices, providing a more nuanced understanding of PCOS.

By amalgamating medical expertise with cutting-edge technology, we aspire to make significant strides in early PCOS detection, thereby improving the quality of life for individuals affected by this prevalent and often underdiagnosed disorder

2. LITERATURE SURVEY:

In 2019, Nusrat Nabi Developing a machine learning-based solution to detect Polycystic Ovary Syndrome (PCOS) and understand its impact on women in Bangladesh. PCOS is a common hormonal disorder that can have significant health implications. The goal is to create an accurate diagnostic tool and gain insights into the prevalence and effects of PCOS in the Bangladeshi population.

In 2020, Pushkaeini M.Anusuya The development of a predictive model that can assess the risk of an individual developing Polycystic Ovary Syndrome (PCOS). PCOS is a complex hormonal disorder that can have health implications, and early risk assessment could enable interventions and personalized healthcare strategies.

In 2014, Viraj Shinde, Tushar Bacchav, Jitendra Pawar and Mangesh Sanap developed "Hand Gesture Recognition System Using Camera". They focus on using pointing behaviors for a natural interface to classify the dynamic hand gesture, they developed a simple and fast motion history image based method. This paper presents low complexity algorithm and gestures recognition complexity and more suitable for controlling real time computer system. It is applicable only for the application Of power point presentation.

In 2014, N. Krishna Chaitanya and R. Janardhan Rao presents "Controlling of windows media player application using hand gesture recognition", this system uses various hand gestures as input to operate the windows media player application. This system uses single hand gestures and its directional motion which defines a particular gesture for the above mentioned application. In this system decision tree has been used for classification. This system only supports windows media player application and not any others.

In 2012, Ram Rajesh J., Sudharshan R., Nagarjunan D. and Aarthi R., "Remotely controlled PowerPoint presentation navigation using hand gestures" developed the system in which slides of power point presentation are controlled without using any marker and gloves. In this system the developer used the segmentation algorithm for hand detection. After detecting hand calculation is for active figures. If the fingers are not stretched properly while making a gesture then application did not work properly.

In 2006, Erol Ozgur and Asanterabi Malima, build a "A Fast Algorithm for Vision- Based Hand Gestures Recognition for Robot Control" which controlled robot using hand gestures but considered limited gestures. Firstly segmentation of hand region was carried followed by locating the fingers and then finally classifying the gestures. The algorithm used is invariant to translation, rotation and scale of the hand. This system is applicable to robot control application with reliable performance.

3. PROBLEM STATEMENT:

3.1 PROBLEM DESCRIPTION:

PCOS is a common hormonal disorder that affects women with ovaries and can lead to various health issues, including irregular menstrual cycles, infertility, and increased risk of other health conditions such as diabetes and heart disease.

INPUT:

Users will be required to create a profile by providing personal details such as name

OUTPUT:

According to given input the system will perform appropriate operation.

3.2 REQUIREMENT ANALYSIS:

There are 3 steps to execute

STEP 1: Review the PCOS

STEP 2: Then Detecting PCOS

STEP 3: Prevention of PCOS.

4 METHODOLOGY:

The overall methodology followed in the proposed technique has three stages.

• User Authentication and Authorization System

Design and implement a secure user authentication system, including role-based access control, to ensure authorised access to the application. features extracted from various data sources (such as hormonal levels, ultrasound images, patient demographics) for input into machine learning models. In our model different features are used.

• Interface Selection and Data Collection

Develop a module allowing users to select specific network interface for monitoring. Implement mechanisms to collect and store network data, including DNS, applications, and NetFlow logs. Assess the performance of existing models in terms of accuracy, sensitivity, specificity, and generalization across different populations

• Data processing and Analysis

Design algorithms and methods for processing collected data, filtering based on various criteria, and performing real-time analysis.Integrate tools for diagnosing network issues using trace route, ping, and packet capture functionalities. PCOS shares some symptoms with other medical conditions, such as thyroid disorders and adrenal gland abnormalities

• Security Enhancement and threat analysis

Create an intuitive user interface ,presenting real-time monitoring data, diagnostic tools, and network analytics in a user-friendly manner. Include customizable dashboard and visualizations to enhance data representation. Several blood tests are commonly used to aid in the diagnosis of PCOS. These tests help assess hormone levels and other related parameters.

5 REQUIREMENT SPECIFICATION:

Python:

Python is a popular programming language in various fields, including data science, machine learning,and artificial intelligence.Python's design philosophy emphasizes code readability with its notable use of significant white space.

Spyder:

Spyder is an integrated development environment (IDE) for Python that is specifically designed for scientific and data-intensive programming..

Spyder is a powerful scientific environment written in Python, for Python, and designed by and for scientists, engineers and data analysts.

Anaconda:

Anaconda is a popular platform for data science and scientific computing Anaconda is a free and open-source distribution of the Python and R programming languages for scientific computing that aims to simplify package management and deployment.

6 CONCLUSION :

PCOS often leads to irregular menstrual cycles. This may include infrequent periods, prolonged menstrual bleeding, or complete absence of menstruation.PCOS is named after the presence of multiple small cysts on the ovaries, which are typically detected through ultrasound imaging.Blood tests may reveal elevated levels of androgens as well as abnormalities in other hormones such as luteinizing hormone and follicle-stimulating hormone.

7 REFERENCES:

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