LUNG CANCER PREDICTION SYSTEM USING DEEP LEARNING

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Abstract - Lung cancer has become the most common and dangerous disease in the world. Cigarette smoking is the primary cause of this lung cancer. Lung cancer is a kind of cancer that begins in the lungs' tissues. It develops when cells in the lung begin to proliferate fast and uncontrollably. Lung cancer may develop in any area of the lungs and impact any aspect of the respiratory system. As a result, lung cancer must be recognized at an early stage, which may be predicted using different machine learning methods. In this study, the KNN algorithm is employed to predict lung cancer, and an accuracy score, as well as a confusion matrix, are created to determine the accurate and wrong predicted characteristics. In this article, lung cancer prediction is accomplished by importing the dataset and running machine learning algorithms on it to determine if the users are cancer-affected.

*Key Words***:** IOT, Smart-Health

INTRODUCTION

Cancer is the second largest cause of mortality in the globe.

In the body, abnormal cells divide uncontrollably. When they infiltrate and destroy normal bodily tissue, they may cause a wide range of disorders. They have the potential to spread to other organs as well. These disorders are referred to as cancer. In 2020, there will be 2.21 million instances of lung cancer. Cancer was responsible for about 10 million fatalities in 2020, with lung cancer accounting for 1.80 million [1]. Some of the causes of lung cancer include smoking, tobacco use, exposure with radon gas, asbestos, and other toxins.

In this research, we will discuss a Machine Learning approach that may be used to predict and prognostic lung cancer. Artificial Neural Networks may help solve real-world issues by using artificial intelligence.

These neural networks may be used for predictive modeling, adaptive control, and application development.

The mechanism of an artificial neural network is explained, which operates on the premise of our brain's neural network, in which information is transmitted from one neuron to another. A neural network is essentially a network of neurons organized in layers. It is a man-made network of neuron circuits identical to those found in human bodies. When compared to the real human brain, it presents a far simpler model. The bottom layer is made up of predictors, while the top layer is made up of predictions. The intermediary layers are concealed layers.

The dataset's independent variables are provided into the input layer. They are then sent to the concealed layer.

The buried layer is the neural network's heart. It computes the parameters that are crucial to the forecast. Weights are applied to the parameters to do this [2]. They are subsequently sent to the output layer. Weights are assigned to the parameters using stochastic gradient descent or a comparably recent approach, adam.

SYSTEM ANALYSIS:

Existing System:

The authors' primary goal in this study was to compare and assess the findings of multi-layer perceptrons, neural networks, decision trees, naive Bayes, gradient-boosted trees, support vector machines, random forests, and majority voting. Gradient-boosted trees outperformed all other classifiers tested using K-fold cross-validation.

The lung cancer dataset from the University of California, Irvine. [7]

The fundamental purpose of [8] is to demonstrate that cancer is a disorder in which the body's cells proliferate uncontrollably. Lung cancer is the term used.

to malignancies that begin in the lungs. Lung cancer may begin in the lungs as well as other organs such as lymph nodes and the liver.

the mind. Lung cancer has the potential to spread to other organs. The word "metastases" refers to the spread of cancer cells across one's body.

From one organ to another. Lung cancer is predicted in this research using GNB machine learning algorithms. Using the University of California as an example,

The performance of the proposed GNB algorithm is evaluated at the Irvine Machine Learning Repository. An examination of performance suggests that

The prediction model developed by GNB surpasses existing machine learning approaches by 98%.

Proposed System

A classification method known as KNN (K Nearest Neighbours) may be used to predict lung cancer. The primary goal is to detect lung cancer early by analyzing the algorithm's performance and forecasting a patient's cancer stage. The suggested technique was implemented on a lung cancer database with 95% accuracy, providing users with reliable

prediction results.

In neural networks, the hidden layers process input to produce something meaningful that the output layer can understand [4]. To begin, the ANN must be taught to provide correct results. The ANN goes through two rounds for this: training and testing [5].

The model is trained using a dataset. Weights are allocated to the parameters, as previously mentioned.

ARCHITECTURE
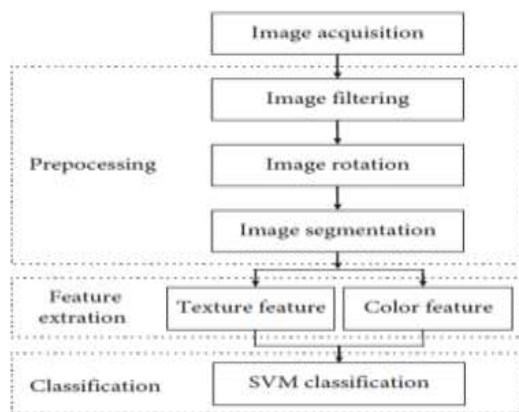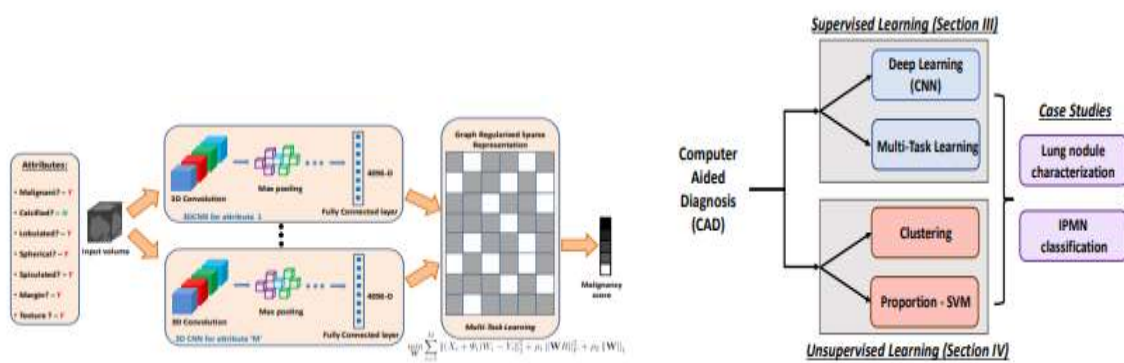
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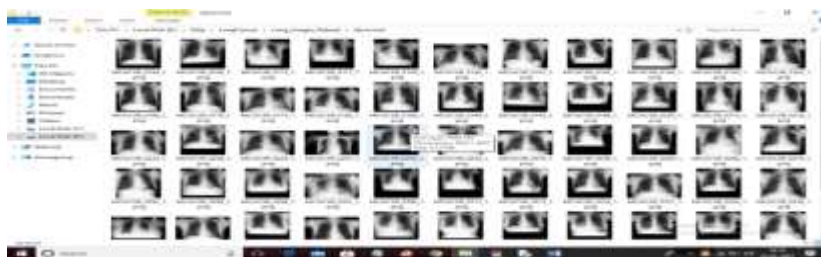
Conclusion:

Early detection of skin illness aids in therapy and Deep learning using ANN and historical data can provide an approximate prediction of whether a person is at risk of being diagnosed with lung cancer in the future, which could help to raise awareness and make efficient use of deep learning for cancer prediction mechanisms.

In the future, this system might be expanded to include new types of data properties, such as photos, and improved deep learning algorithms for prediction. This technique may also aid in providing individuals with a more sophisticated understanding of many cancer-causing elements.

It also involves broadening the project's scope to encompass cancers other than lung cancer. It may raise people's awareness of risk factors and help them avoid being diagnosed with lung cancer in the future.

5. RESOURCES

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