Multi Disease Detection and Predictions Based on Machine Learning

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Abstract-Incurable diseases like; heart disease, cancer, diabetes, stroke, and arthritis are the main causes of infirmity, death in India and throughout the world. As correlate with other diseases these types of diseases have high rate of deaths, so there is need of better solution overcome these types of chronic diseases. Medical data growth in healthcare communities, accurate analysis of medical data benefit, early disease detection, patient care and community services. However, the study of patient disease depends on exactness of diagnosis and then treatment as well. The incorrect diagnosed patient leads deaths in such type of diseases. So the high risk of diagnosis we require more accurate diagnosis aid for chronic diseases. So we are developing diagnosis system based on machine learning for giving more proper solution with high accuracy. The advanced system be contained of many diseases such as lung cancer, brain tumour, heart disease detections and stages predictions. Increasing of deaths due to these chronic diseases like heart disease, lung cancer, brain tumour need to establish more proper diagnosis system that will help doctors. The incorrect diagnosis leads to human deaths so we need to work on accurate diagnosis of multiple diseases. Many work is already carried out for different diseases but there is not any promising solution found that gives accurate diagnosis for all in one. The proposed system will contain many diseases such as lung cancer, brain tumour, heart disease detections and stages predictions. We are trying to build a system for multi disease detection and stages predictions that gives early detection and saves lots of life's by reducing death rate of chronic diseases.

Keywords- Multi Disease Detection, Heart Disease, Training, Machine Learning.

I. INTRODUCTION

Now day's heart diseases are growing rapidly by busy and stress full life. All type of age groups is under heart diseases so need of early detection of heart disease by using symptoms or reports. Due to large amount of smoking and air pollution around the world, lung cancer has become one of the most common and deadly disease in recent decades. It is one the most dangerous disease among men and women and early identification and treatment is the best available option for the infected people. Main objective behind to develop a system helps the doctors to cross verify their diagnosed results which gives promising solution over existing death rates. By using our proposed work try to invent unique platform and most promising solution for early diagnosis of multiple diseases. Existing work analysis accuracy is reduced when the quality of medical data is incomplete. Moreover, different regions exhibit unique characteristics of certain regional diseases, which may weaken the prediction of disease wrong. So we are giving more accurate solution by using machine learning and

Convolutional neural network to detect diseases and make predictions. The proposed system consists of many diseases such as lung cancer, brain tumour, heart disease detections and stages predictions.

II . LITERATURE SURVEY

Animesh Hazra et al. [1] proposed Heart diseases when irritated winding path out of hand. Heart diseases are convoluted and remove loads of lives each year. When the early side effects of heart diseases are overlooked, the patient may wind up with uncommon outcomes in a short length of time. Stationary way of life and over the top worry in this day and age has exacerbated the circumstance. On the off chance that the diseases are distinguished early, at that point it very well may be monitored. Be that as it may, it is constantly prudent to practice every day and dispose of undesirable propensities at the soonest. Tobacco utilization and undesirable weight control plans increment the odds of stroke and heart illnesses. Eating in any event 5 helpings of products of the soil multi day is a decent practice. For coronary illness patients, it is prudent to confine the admission of salt to one teaspoon every day.

Anuradha S. Deshpande et.al [2] states among every other sort of malignant growth, Lung Cancer is one of the most widely recognized reasons for death all through the world. It is important to get legitimate treatment on schedule, to diminish demise pace of individuals on the planet. In the Lung malignant growth discovery framework, we have recognized different phases of malignant growth by utilizing Support vector machine classifier (SVM). The watershed division is utilized in this framework which is the best division procedure. Utilizing MATLAB programming, we have User Interface UI (GUI) and it is utilized to play out every one of the procedures of the framework. We will probably get increasingly exact and exact consequences of the various phases of disease by utilizing different techniques. We have played out the combination of CT and MRI examining. This method improves the nature of the information. In this manner, we get the suitable stage.

Abbas Khosrav et.al [3] proposed Characterization of lung disease utilizing a low populace, high dimensional dataset is trying because of lacking tests to become familiar with an exact mapping among highlights and class marks. Current writing more often than not handles this errand through high quality component creation and determination. Lately profound learning is observed to have the option to recognize the fundamental structure of information using auto encoders and different procedures. In this work, a profound auto encoder grouping system is proposed which initially adapts profound highlights and after that prepares a fake neural system with these educated highlights. Exploratory outcomes demonstrate the profound educated classifier outflanks every single other classifier at the point when prepared with all properties and same preparing tests. It is likewise exhibited that the presentation improvement is factually huge.

Ali M. Hasan et.al [4] introducing Mind tumor division in magnetic resonance imaging (MRI) is viewed as a complex methodology in light of the inconstancy of tumor shapes and the intricacy of deciding the tumor area, size, and surface. Brain tumor division is a tedious assignment profoundly inclined to human mistake. Henceforth, this examination proposes a mechanized strategy that can recognize tumor cuts and portion the tumor overall picture cuts in volumetric MRI mind filters. Initial, a lot of calculations in the pre-preparing stage are utilized to clean and institutionalize the gathered information. An altered dim level co-event lattice and Analysis of Variance (ANOVA) are utilized for highlight extraction and include choice, individually. A multi-layer perceptron neural system is received as a classifier, and a bouncing 3D-box-based hereditary calculation is utilized to distinguish the area of obsessive tissues in the MRI cuts. At long last, the 3D dynamic shape without edge is connected to portion the cerebrum tumors in volumetric MRI checks.

Shadab Adam Pattekari and Asma Parveen [5] states Choice Support in Heart Disease Prediction Framework is created utilizing Naive Bayesian Characterization strategy. The framework separates concealed learning from an authentic coronary illness database. This is the best model to anticipate patients with coronary illness. This model could answer complex questions, each with its very own quality without breaking a sweat of model elucidation, get to nitty gritty data and exactness. HDPS can be further improved and extended. For, instance it can fuse other therapeutic qualities other than the above rundown. It can likewise fuse other information mining systems. Ceaseless information can be utilized rather than simply straight out information.

S.Florence et.al. [6] introducing The medicinal services condition is an ever increasing number of information advanced, yet the measure of learning getting from those information is less, on the grounds that absence of information investigation apparatuses. We have to get the concealed connections from the information. In the human services framework to foresee the heart assault consummately, there are a few methods which are now being used. There is some absence of exactness in the accessible methods like Naïve Bayes. Here, this paper proposes the framework which employments neural system and Decision tree (ID3) to foresee the heart assaults. Here the dataset with 6 credits is utilized to analyze the heart assaults. The dataset utilized is part of heart assault dataset given by UCI AI store. The consequences of the expectation give more exact yield than different procedures.

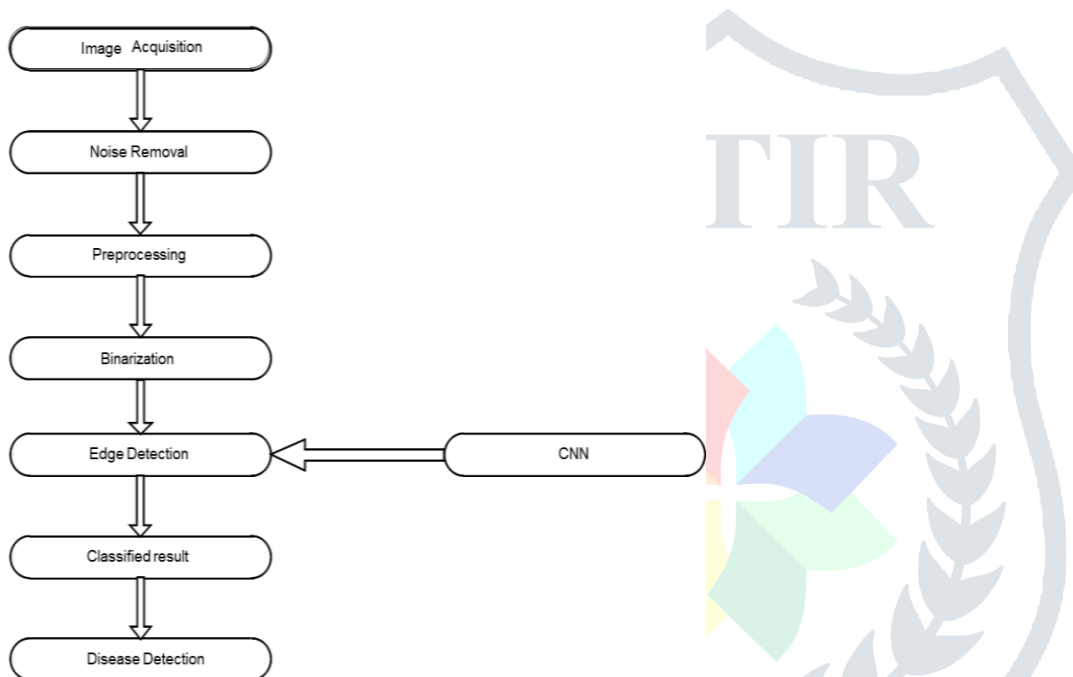## III.EXISTING SYSTEM APPROACH

Fig.1 Block Diagram of Existing System

Reliable identification and classification of chronic diseases requires pathological test, namely, needle biopsy specimen and analysis by experienced pathologists as it involves human judgment of several factors and a combination of experiences, a decision support system is desirable in this case. After diagnosis of manual judgments, the rate of saving life of patients is not much good. The techniques used in existing work are unable to give Nobel solution over chronic diseases and accuracy is very poor. Algorithm using structured and unstructured data from hospital. To the best of our knowledge, none of the existing work focused on both data types in the area of medical big data analytics. Reducing death rate by wrong diagnosis using giving accurate diagnosis. Existing system does not provide diagn02osis system which helps to doctors.

IV.PROPOSED SYSTEM APPROACH

In a proposed system, we are proposing experiment on chronic diseases like lung cancer, brain tumor, heart disease and breast cancer with limited set of supervised data.
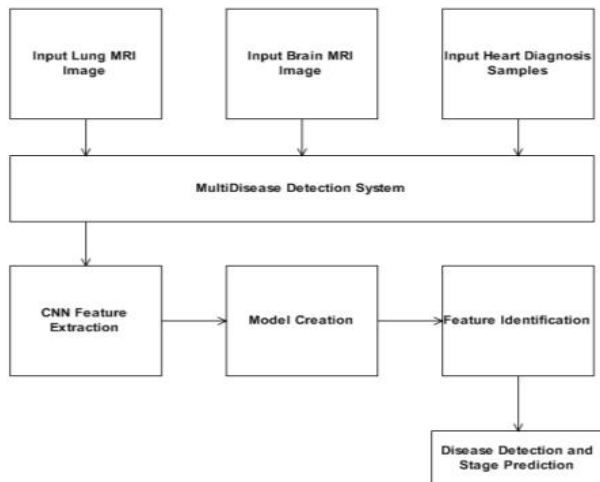
Fig.2 Block Diagram of Proposed System

We propose a new Convolutional neural network based multimodal disease risk prediction model for limited chronic diseases with higher accuracy. We are going to solve accuracy issue in diagnosis of lung cancer with accurate stage predictions. We also work on brain tumors detections by machine evaluations depends on tumor sizes in mm. Heart disease detection depends on diagnosed dataset such as symptoms of heart reports. In proposed system consist mainly 3 modules Lung Cancer Detection, Heart Disease Identification, Brain Tumor Detection. Admin and users are two modules include in our system. Admin first gather the information about multiple diseases in the form of text as well as in the form of images. After gathering of information like preprocessing on the data, training of the data, model generation according to the features of the data. User insert the MRI image for checking brain tumor or lung cancer and enter text symptoms for detection of heart disease. Using our proposed system, we predict the disease according to different type of stages. System also provide precaution list to the user for prevent form disease. We are trying to develop system for multi disease detection and stages predictions gives early detection and saves lots of life's by reducing death rate by chronic diseases.

V. TECHNIQUES

Filtering is a technique to modify or enhance the image, i.e. to highlight certain features or remove other features. It includes smoothing, sharpening. and edge enhancement.

Image filtering algorithms are used to remove different types of noise from the image.

Gaussian Noise: Also called as Additive noise.

Poisson Noise: Also called as Shot noise or Photon Noise.

Salt and Pepper Noise: It is discoloration of few pixels in the image.

VI. PROPOSED WORK VS EXISTING WORK

Reliable identification and classification of chronic diseases requires pathological test, namely, needle biopsy specimen and analysis by experienced pathologists

As it involves human judgment of several factors and a combination of experiences, a decision support system is desirable in this case.

After diagnosis of manual judgments, the rate of saving life of patients is not much good.

The techniques used in existing work is unable to give Nobel solution over chronic diseases and accuracy is very poor.

VII. PROPOSED RESULT SETS

Disease detection with higher accuracy.
Stages & type prediction based on trained model.

VIII. CONCLUSION

We are going to invent multi disease detection system over machine learning and CNN techniques which solves existing accuracy problem as well as reduce death rates by chronic type diseases like lung cancer detection, brain tumor detection and heart disease. After detection of disease inform to users that how to prevent from a disease. For future work, we can implement this technique on some more chronic diseases with rich dataset. Increasing the number of diseases and dataset used for the process, can improve the accuracy.

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