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CLASSIFICATION OF FRACTURED BONES USING MACHINE LEARNING

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ABSTRACT

Normally human contains 206 bones in human body and it classifies into two types axial and appendicular skeleton. We came to know that bones(x-rays) are classified under circumstances and stored in database. Which can be accessed only when we know complete details of bone or fracture for future reference or may be it lost? So we prefer datasets stored for retrieval of data(x-rays) is peculiar than other methods. How we classify using random forest algorithm and store in a hierarchy for easy retrieval of data, By this the bones can be classified easily and it can be added with date time and other credential information needed.

Keywords –Bones, Classification, Random Forest Algorithm, Dataset, Stored .

I. INTRODUCTION

Random forest is a supervised learning algorithm which is used for regression as well as Classification. But however, it is mainly used for classification . As we know that a forest is made up treesas there are several trees means more robust forest. Similarly, random forest algorithm creates decision trees on data samples and then gets the prediction from each of them and finally selects the best solution by means of voting. It is an ensemble method which is better than a single decision tree because it reduces the over-fitting by averaging the result.So we use this method for classifying data and that predicted output is exposed and stored in database.

II. EXISTING SYSTEM

The human skeleton is the internal framework of the human body. It is composed of around 270 bones at birth – this total decreases to around 206 bones by adulthood. The scanning centers take x-rays of these bones and they don't store it and classify them manually as it will cost more amount of time, So this prevents the collection of different types of bones and also for research purpose the datasets are difficult to find. As a researcher may need a particular type of data but the scanning centers wont keep it separately rather than they might have stored in a group and it causes trouble for the researcher to fetch the particular bones they want for research.

III. DISADVANTAGES

- Data may be lost due to large memory.
- Image quality may be reduced then detection of image becomes more complex
- Occupies large amount of memory
- No hierarchy so image retrieval takes large amount of time

IV. PROPOSED SYSTEM

This projects needs a large dataset so the first work is to collect the dataset for the training process then we need to train the dataset so that the features like haralick and colour status are extracted and passed on to get the precisive score from the random forest classifier then the test case are passed to the testing where there same process is repeated and same haralick feature and the colour stats is determined for the x-ray image then compared with each score so that it will represent the score closely matching with it and return the name of the bone. So with the help of the results they are directly stored in cloud or local db.

V. ADVANTAGES

This project is purely based on three aspects

- To collect variety of datasets
- To determine the type of bone
- To store that result in different folders according to their type in local database or cloud

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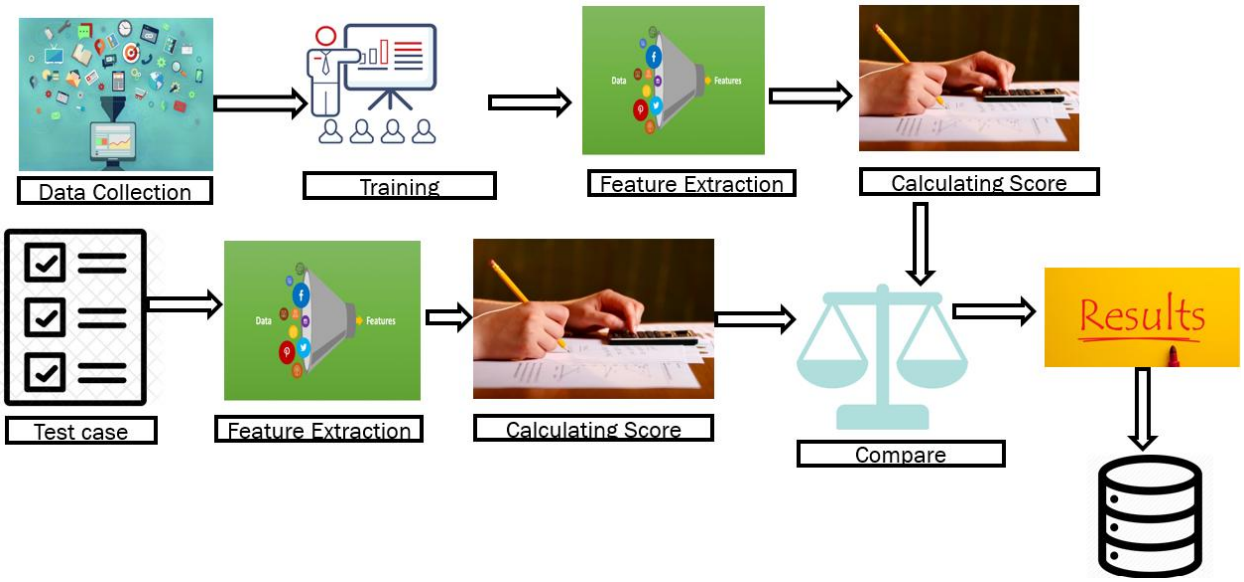
VI. ARCHITECTURE



VII. MODULES

- Data Collection
- Data Training
- Data Testing
- Pictorial Representation

Data Collection:

It consists of all the images of the bones which are needed for the training module.

Data Training:

This is used to extract the features from the images and used to store the precisive score of that categorized data.

Data Testing:

This module is used to test the testcases by repeating the data extraction process and compares with the precisive score and takes decision and provides the output.

Pictorial Representation:

This displays the output in the pictorial form with the appropriate result.

VIII. SNAPSHOTS

8.1.Data Collection

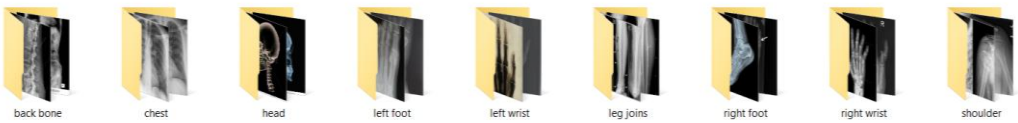


Fig 8.1

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8.2.DataTraining

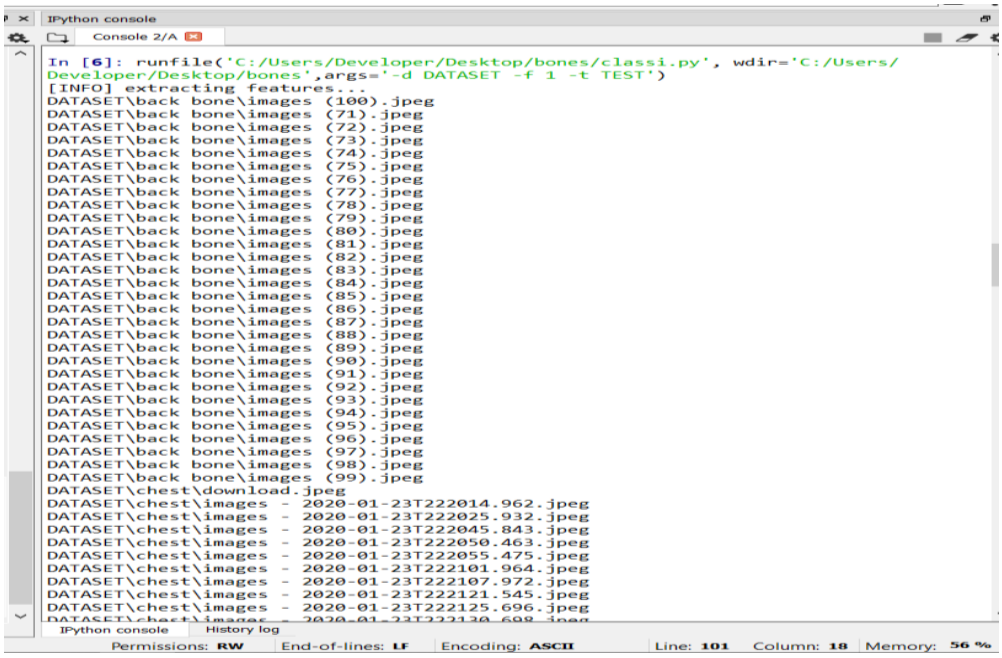

Fig 8.2

8.3.Data Testing

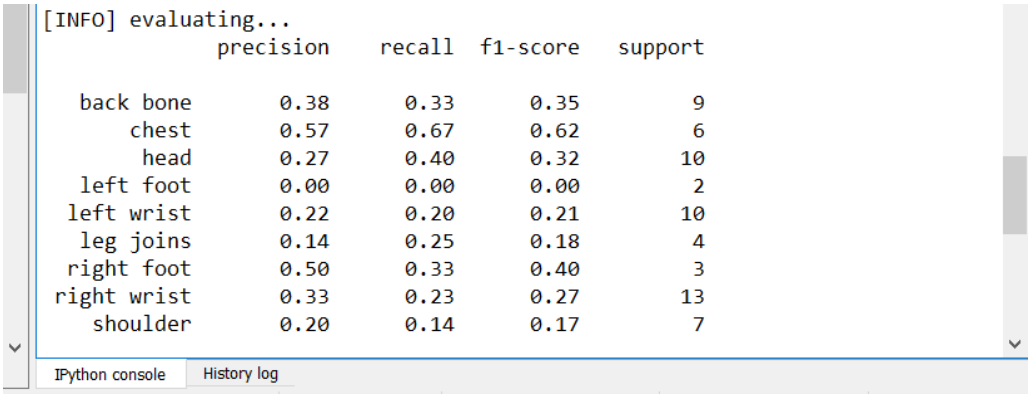

Fig 8.3

8.4. Pictorial Representation

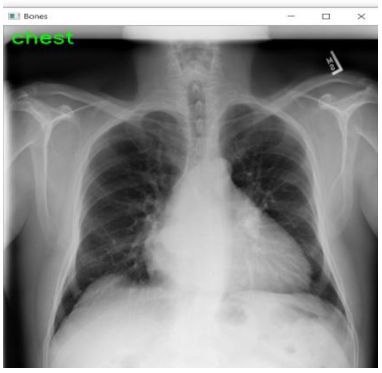

Fig 8.4

IX. REFERENCES

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