DETECTING PARKINSON'S DISEASE USING MACHINE LEARNING

NALAIYATHIRAN REPORT

Submitted By

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ANNA UNIVERSITY : CHENNAI 600 025

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CHAPTER 1

1.1 INTRODUCTION

In the present decade of accelerated advances in Medical Sciences, most studies fail to lay focus on ageing diseases. These are diseases that display theirsymptoms at a much advanced stage and makes a complete recovery almost improbable. Parkinson's disease (PD) is the second most commonly diagnosed neurodegenerative disorder of the brain. One could argue, that it is almost incurable and inflicts a lot of pain on the patients. All these make it quite clear that there is an oncoming need for efficient, dependable and expandable diagnosis of Parkinson's disease. The aim of this work is to compare various machine learning models in the successful prediction of the severity of Parkinson's disease and develop an effective and accurate model in order to helpdiagnose the disease accurately at an earlier stage which could in turn help thedoctors to assist in the cure and recovery of PD Patients. For the aforementioned purpose we plan on using the Parkinson's Tele monitoring dataset which was acquired from the UCIML repository

1.2 PURPOSE

The aim of this work is to compare various machine learning models in the successful prediction of the severity of Parkinson's disease and develop aneffective and accurate model in order to help diagnose the disease accurately atan earlier stage which could in turn help the doctors to assist in the cure and recovery. This project showed 90% efficiency. In our model, a huge amount of data is collected from the normal person and also previously affected person by Parkinson's disease.

CHAPTER 2

LITRERATURE REVIEW

2.1 LITERATURE SURVEY

1. Paper Title: The Parkinson’s Disease Detection Using Machine Learning Techniques

Publication: Oct 2021

Author name: Dr. C K GOMATHY, Mr. B. DHEERAJ KUMAR REDDY, Ms.B.VARSHA, Ms. B. VARSHINI

Methodology: The Parkinson's disease is a progressive neuro degenerativedisorder that mostly affect the motor functions of human. The main motor symptoms are shaking, rigidity, slowness of movement and difficulty with walking. There is a model for detecting Parkinson's using voice. The deflections in the voice will confirm the symptoms of Parkinson’s disease. The data of any person can be entered in to check whether the person is affected by Parkinson’s disease or not. 60% of the data is used for training and 40% for testing. This project showed 73.8% efficiency using machine learning algorithms.

2. Paper Title: Parkinson Disease Detection Using Deep Neural Networks

Publication: august 2019

Author name: Shivangi, Anubhav Johri, Ashish Tripathi

Methodology: Parkinson's disease (PD) is a neurodegenerative disorder, which is responsible for the deterioration of motor function. Two neural network based models namely, VGFR Spectrogram Detector and Voice Impairment Classifier have been introduced. The proposed models outperformed the existing state of the art in terms of accuracy. The classification accuracy on VGFR Spectrogram

Detector is recorded as 88.1% while Voice Impairment Classifier has shown 89.15% accuracy.

3. Paper Title: A nonlinear decision tree based classification approach to predict the Parkinson's disease using different feature sets of voice data

Publication: March 2018

Author Name: Satyabrata Aich, Kim Younga, Kueh Lee Hui, Ahmed Abdulhakim Al-Absi, Mangal Sain

Methodology: Recently machine learning based approach has been used by many researchers across the field because of its accuracy on the complex data. Machine learning based approach has been used in many cases of Parkinson's disease using gait data as well as voice data. However, so far no body ha s compared the performance metrics using different feature sets by applying non-linear based classification approach based on the voice data. This paper proposed a new approach by comparing the performance metrics with different feature sets such as original feature sets as well as Principal component Analysis based feature reduction technique for selecting the feature sets.It shows an accuracy of 96.83% using random forest classifiers using PCA based feature sets. This analysis will help the clinicians to differentiate the PD group from healthy group based on the voice data.

4. Paper Title: Diagnosis of Parkinson's Disease Using Speech Samples and Threshold-Based Classification

Publication: November 2015

Author Name: Froelich, Wojciech; Wrobel, Krzysztof; Porwik, Piotr

Methodology: This paper proposed the diagnosis of Parkinson's disease on the basis of characteristic features of a person's voice. First, the individual voice samples are classified as belonging either to a sick or to a healthy person. For that

task, decision trees (the most efficient classifier) are selected. Second, using the threshold-based method, the final diagnosis of a person is made using previously classified voice samples. The value of the threshold determines the minimal number of individual voice samples (indicating the disease) that is required for the reliable diagnosis of a sick person. After numerous experiments with real- world data, the accuracy of classification achieved 90%. The high efficiency of diagnosis justifies that the proposed approach is worth using in medical practice.

2.2 PROBLEM STATEMENT

People with parkinsonism generally have problem of balance, difficulty in speaking or tremors in one hand. These are the common issue faced by so many people in the world, especially geriatric aged.

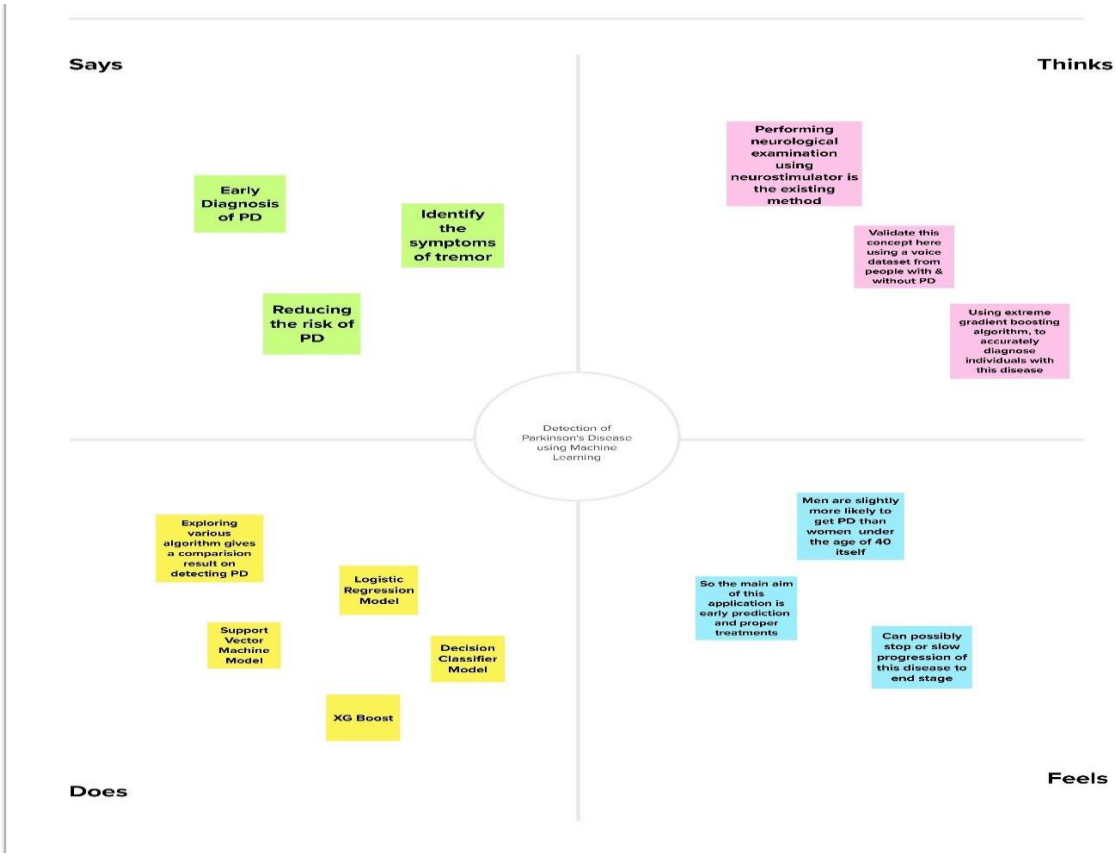
The problem that how will they know this is happening because of aging orthey have Parkinson's disease is difficulty to identify. Here when the patientdecides to speak and cannot produce the correct vocal sounds. Parkinson's disease is a neurodegenerative disorder that affects millions of people around the world. Parkinson's disease can affect a person's voice, causing them to speak softly or have difficulty in forming sound clearly. Speech or voice data is assumed to be 90% help full to diagnose the result. The proposed system used a data set parkinson.csv. A speech data set includes the number of voice features such as jitter, shimmer, pitch, and frequency. Different data pre-processing methods, such as data standardization technique to improve the quality of data. In the present work relevant features were then extracted using Mel Frequency Cepstral Coefficient (MFCC) algorithm. Classification is performed using a Support Vector Machine (SVM) algorithm to differentiate between healthy and people withParkinson's

disease. The outcome of the proposed system is early detection of Parkinson's disease, which may help to better diagnose the disease. Medical observations and assessment of clinical indicators, including the identification of a variety of motor symptoms, are often used to diagnose Parkinson's disease (PD). Traditional diagnostic procedures, on the other hand, may be vulnerable to subjectivity because they rely on the assessmentof motions that are sometimes subtle to human sight and hence difficult to define, potentially leading to misdiagnosis. Meanwhile, early nonmotor symptoms of Parkinson's disease can be minor and be caused by a variety of other illness. As a result, these symptoms are frequently missed, makingearly PD diagnosis difficult.

CHAPTER 3
IDEATION & PROPOSED SOLUTION

3.1 EMPATHY MAP CANVAS

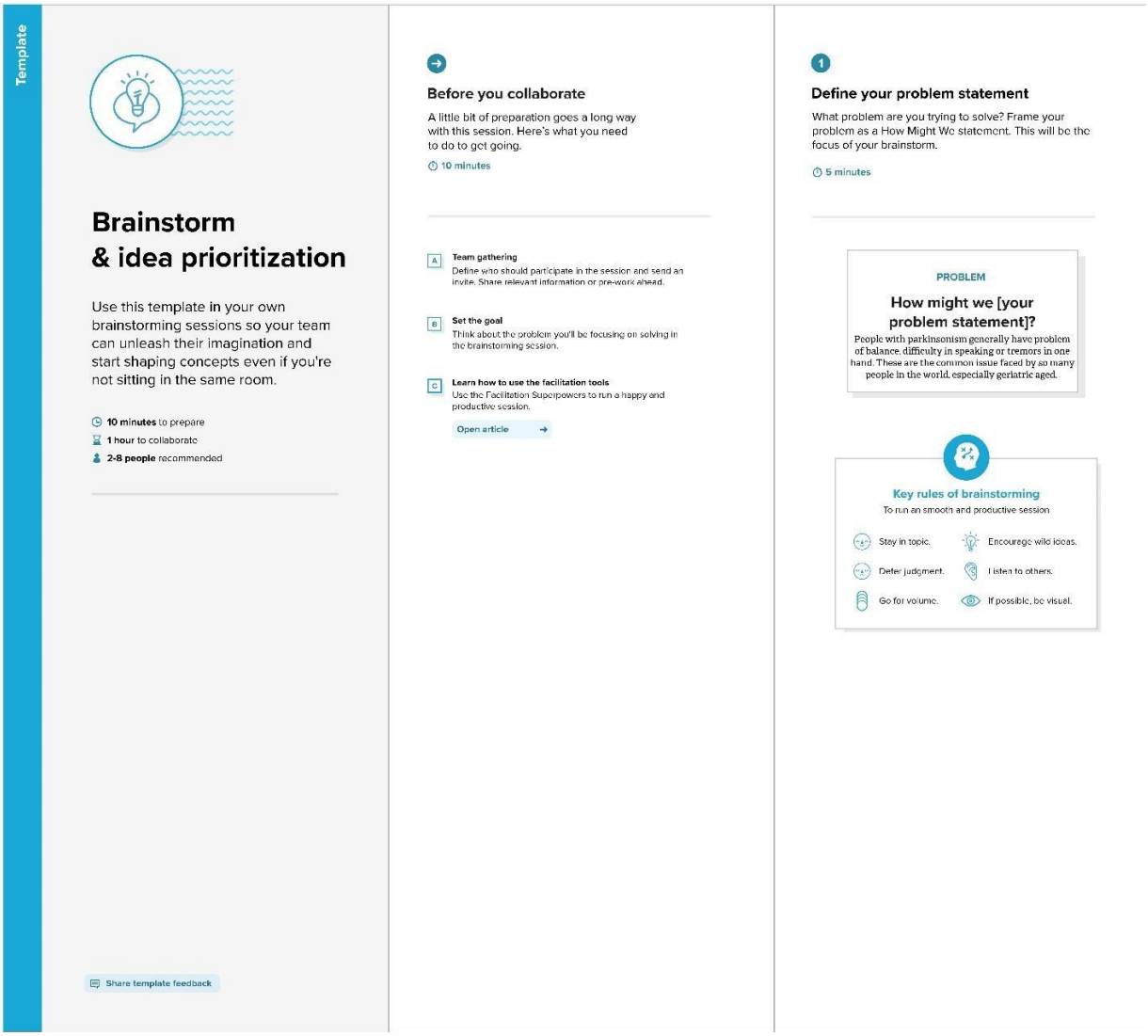
An empathy map is a simple, easy-to-digest visual that captures knowledgeabout a user's Behaviours and attitudes. It is a useful tool to helps teams better understand their users. Creating an effective solution requires understanding the true problem and the person who is experiencing it. The exercise of creating the map helps participants consider things from the user's perspective along with his or her goals and challenge



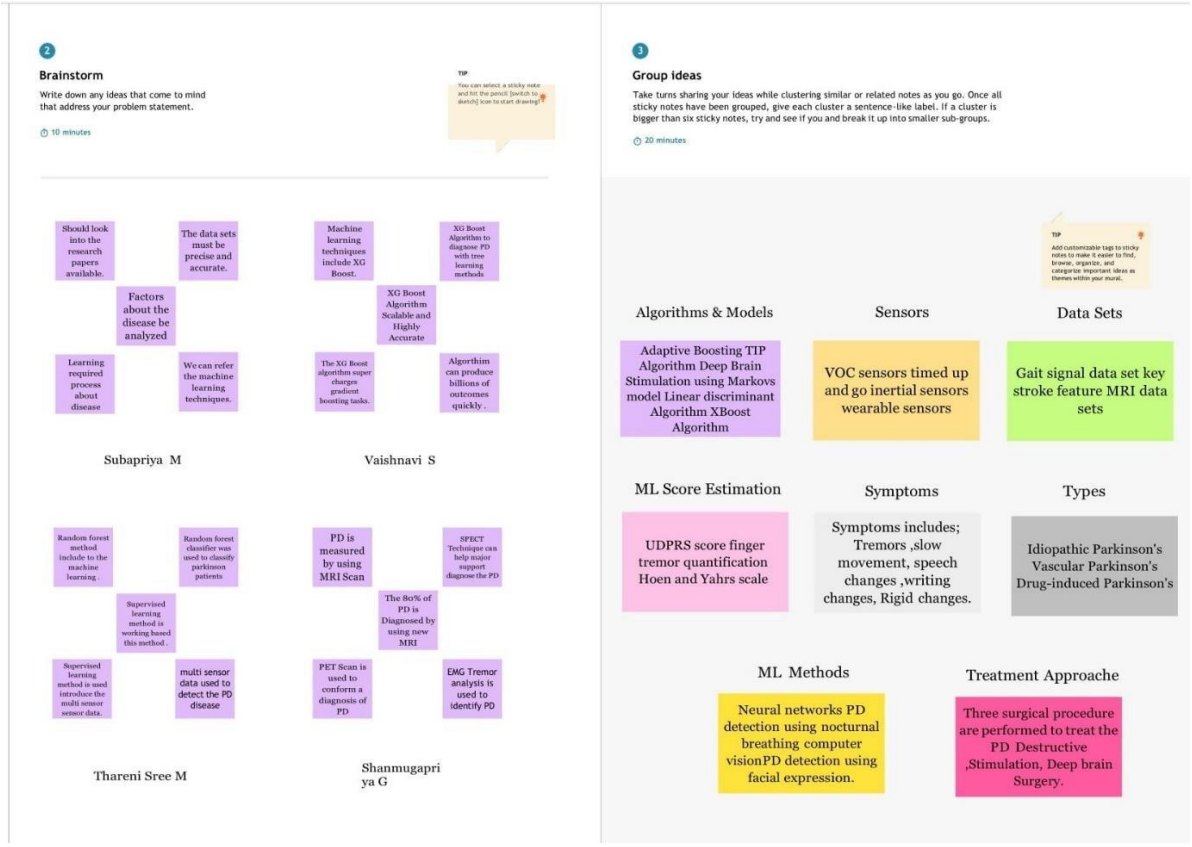
3.2 IDEATION & BRAINSTORMING

Brainstorming provides a free and open environment that encourages everyone within a teamto participate in the creative thinking process that leads to problem solving. Prioritizing volume over value, out participants are encouraged to collaborate, helping each other develop a rich amount of creative solutions.

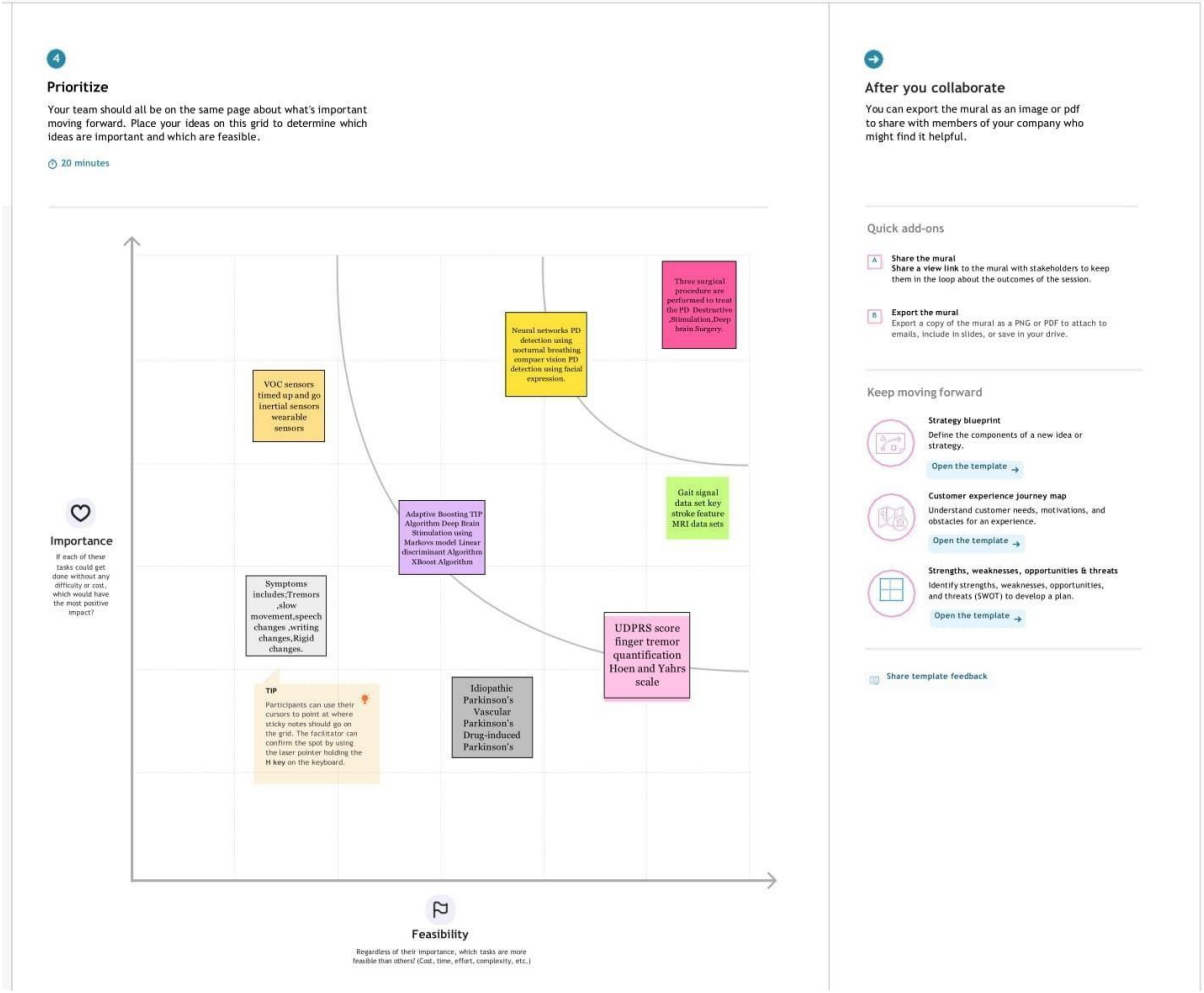
Step-1: Team Gathering, Collaboration and Select the Problem Statement



Step-2: Brainstorm, Idea Listing and Grouping



Step-3: Idea Prioritization

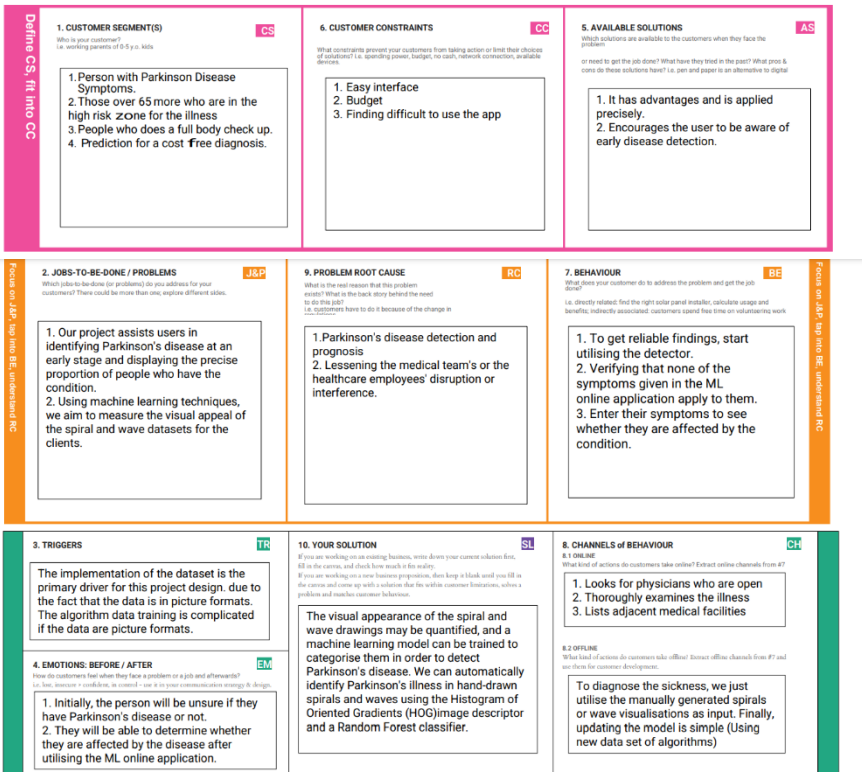


3.3 PROPOSED SOLUTION:

Project team shall fill the following information in proposed solution template.

S.NO	PARAMETER	DESCRIPTION
1	Problem Statement (Problem to be solved	Parkinson's disease cannot be cured, but early diagnosis and the right medicine can lessen the symptoms and enhance quality of life. Our main goal is to use the Random Forest classifier to predict the disease and to automatically identify Parkinson's disease in hand-drawn spirals and waves.
2	Idea / Solution description	In this project, we're utilising the HOG (Histogram of Oriented Gradients), which combines the Random Forest Classifier with an image detector and processor to automatically identify Parkinson's Disease in a hand-drawn image of waves and spirals.
3	Novelty / Uniqueness	A feature descriptor used in computer vision and image processing for object detection is the histogram of oriented gradients (HOG). The method counts instances of gradient orientation in specific areas of a picture. Combining this with random forest may improve tree construction. Combining the two will assist in creating the model.
4	Social Impact/ Customer Satisfactio n	In the Scientific perspective, the "Early" is easy to comprehend within the Framework of Disease pathology and itsmanifestation,making an Economic Burden on the Health Care System, Society and the patients themselves so the Early Detection can Reduce that cost burden
5	Business Model (Revenue Model)	This project model emphasises and focused on helping people who have Parkinson's disease and are receiving medical therapy.
6	Scalability of the Solution	Convergence and numerical precision problems, which can cause problems for the algorithms employed in logistic and linear regression as well as neural networks, aren't as significant in RF due to its nature. This means that unlike with a NN, there is no need to translate the variables to a common scale.

3.4 PROBLEM SOLUTION FIT



3.5 Functional Requirements:

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	Registration through Link (HTML page)
FR-2	User Confirmation	Confirmation via Email
FR-3	Upload voice as input	Add voice Device or through Drive
FR-4	Microphone on	When the microphone is on it recognize the voice and return the required output.

3.6 Non-functional Requirements:

Following are the non-functional requirements of the proposed solution.

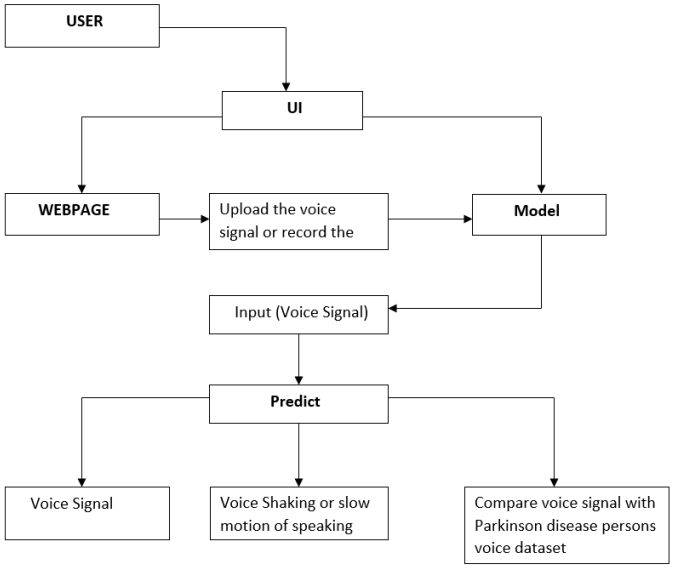
FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	This software will be easy to use for all users with minimal instructions. User experiences are assessed in a mixed methods approach with patients and experts.
NFR-2	**Security**	The user of the system should be provided the surety that their account details are secure. The System will provide security against crosssite request forgery.
NFR-3	**Reliability**	This software will be operable in all conditions. Regardless of the person physically challenged(who can't speak)
NFR-4	**Performance**	This software will minimize the number of calculations used to perform with more accuracy and processed fast.
NFR-5	**Availability**	This software will be available to all operating system. While it is currently has a relatively limited role in direct patient care, its evolving role in Complex clinical decision making
NFR-6	**Scalability**	This software will be enterprise scalability of AI development and deployment.

CHAPTER 4

PROJECT DESIGN

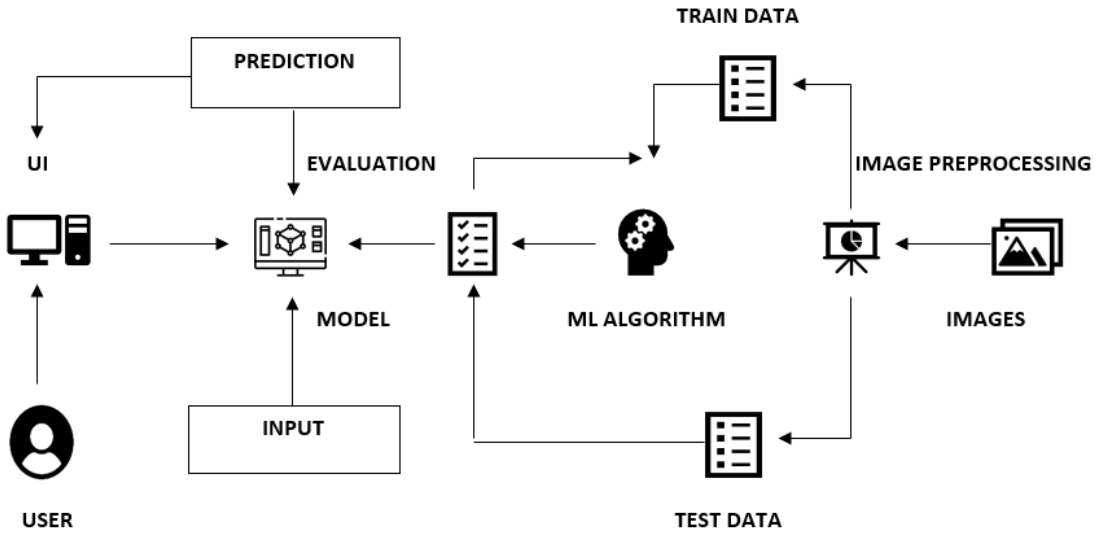
4.1 DATA FLOW DIAGRAM

A data flow diagram shows how information flows through a process or system. This includes data input/output, data storage, and various sub processes through which data moves. DFDs are created using standardized symbols and notations to describe various entities and their relationships.



4.2 SOLUTION & TECHNICAL ARCHITRCTURE

To present your insights and analysis, IBM Cognos Analytics offers dashboards andstories. A view that includes visualizations, such as a graph, chart, plot, table, map, or any other type of visual representation of data, can be put together. Discover trends and correlations that have an influence on your business by exploring stunningdata visualizations in IBM Cognos Analytics. A display helps you keep track of events or activities quickly by displaying important data insights and analyses on oneor more pages or screens.



4.3 USER STORIES

A "user narrative" is a casual, generic explanation of a software feature written fromthe perspective of the client or end user. A user narrative explains how a piece of work will give the client a specific of a value.

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer	Login	USN-1	Entering Webpage	Enter the application	High	Sprint-1
	Homepage	USN-2	Entering to the "Homepage" of the UI(Webpage)	Enter the homepage	High	Sprint-1
	About	USN-3	I can click on the "About" to the details about the application	Get the details about the application	Low	Sprint-2
	Begin	USN-4	As a user, I can upload my voice signal from	Choose my voice recording from my	High	Sprint-2

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
			the computer	device		
	Predict	USN-5	As a user, I can turn on microphone or earphone to record my voice	Turn on the microphone or earphone for As a user I can upload my voice signal from the computer prediction	High	Sprint-3
		USN-6	Predicting by using voice signal	Can monitor voice change or voice shaking	High	Sprint-3

CHAPTER 5

PROJECT PLANNING & SCHEDULING

5.1 SPRINT PLANNING & ESTIMATION

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	2	High	Subapriya M Thareni Sree M Vaishnavi S Shanmugapriya G
Sprint-1		USN-2	As a user, I will receive confirmation email once I have registered for the application	1	High	Subapriya M Thareni Sree M Vaishnavi S Shanmugapriya G
Sprint-2		USN-3	As a user, I can register for the application through Facebook	2	Low	Subapriya M Thareni Sree M Vaishnavi S Shanmugapriya G
Sprint-2		USN-4	As a user, I can register for the application through Gmail	2	Medium	Subapriya M Thareni Sree M Vaishnavi S Shanmugapriya G
Sprint-2	Login	USN-5	As a user, I can login into	1	High	Subapriya M Thareni Sree M

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
			the application by entering email& password			Vaishnavi S Shanmugapriya G
Sprint-3	Dashboard	USN-6	As a user, I can upload my images and get my details.	3	High	Subapriya M Thareni Sree M Vaishnavi S Shanmugapriya G
Sprint-1	Logout	USN-7	As a user I can logout successfully.	2	Medium	Subapriya M Thareni Sree M Vaishnavi S Shanmugapriya G
Sprint-4	Feedback	USN-8	A customer care executive, I can able to interact with all the customer and get their feedback which is used to enhance the scope of the project	2	Medium	Subapriya M Thareni Sree M Vaishnavi S Shanmugapriya G
Sprint-3	Image processing localization	USN-9	The uploaded image is preprocessed and fed into trained model.	3	High	Subapriya M Thareni Sree M Vaishnavi S Shanmugapriya G
Sprint-4	Classification and prediction	USN-9	The model classifies and predicts the type of disease.	3	High	Subapriya M Thareni Sree M Vaishnavi S Shanmugapriya G
Sprint-4	Report generation	USN-10	Based on the prediction of	2	Medium	Subapriya M Thareni Sree M

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
			Parkinson's disease, the health care is generated to provide the feedback.			Vaishnavi S Shanmugapriya G

5.2 SPRINT DELIVERY SCHEDULE

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint-1	20	6 Days	24 Oct 2022	29 Oct 2022	20	29 Oct 2022
Sprint-2	20	6 Days	31 Oct 2022	05 Nov 2022	20	07 Nov 2022
Sprint-3	20	6 Days	07 Nov 2022	12 Nov 2022	20	12 Nov 2022
Sprint-4	20	6 Days	14 Nov 2022	19 Nov 2022	20	19 Nov 2022

CHAPTER 6

CODING &SOLUTION

6.1 FEATURE 1

HANDWRITING TASKS IN PARKINSON'S DISEASE:

In this study, we looked into the representativeness of a group of handwriting-related proposed features for PD detection and assessment. In particular, we classified healthy people and PD patients (PD detection), as well as mild and moderate PD patients, using a histogram and random forest algorithms (PD rating). High levels of accuracy, sensitivity, and specificity demonstrated by the implemented and evaluatedmethodologies demonstrated positive outcomes. These findings point to the viability of the suggested configuration for use in clinical settings to assist in diagnosing Parkinson's disease. Thus, the straightforward procedure continued after days and years.

6.2 FEATURE 2

Due to the necessity of lifting the pen from the paper's surface and repositioning it inorder to continue writing, in-air movements continue to be a fascinating area of research. It is reasonable to suppose that individuals with PD would have much longerin-air times than controls due to their delay in initiating movements. The significanceof the in-air manoeuvre has been stressed by and Rosenblum. Patients with PD apparently wrote in a smaller size, needed longer performance time, and exerted muchless pressure to the writing surface than controls. It's interesting to note that the variance in stroke duration between groups 23 in the air was bigger than the variancein stroke duration on paper. By carefully differentiating between on-surface movement, in-air movement, and pressure and examining their respective contributions in differentiating patients with PD from healthy controls,

were able to validate this. Employed a supervised machine learning support vector machine with anonlinear radial basis function kernel to categorize samples as PD or controls. 46 An accuracy of about 90% may be attained using fundamental kinematics and pressure characteristics. 47 If the air stroke can be investigated similarly to the on-surface stroke, the question still has to be answered. It seems likely that PD patients' in-air stroke kinematic characteristics, such as velocity, acceleration, and jerk, would be different from those of healthy control

CHAPTER 7

TESTING

7.1 TEST CASES

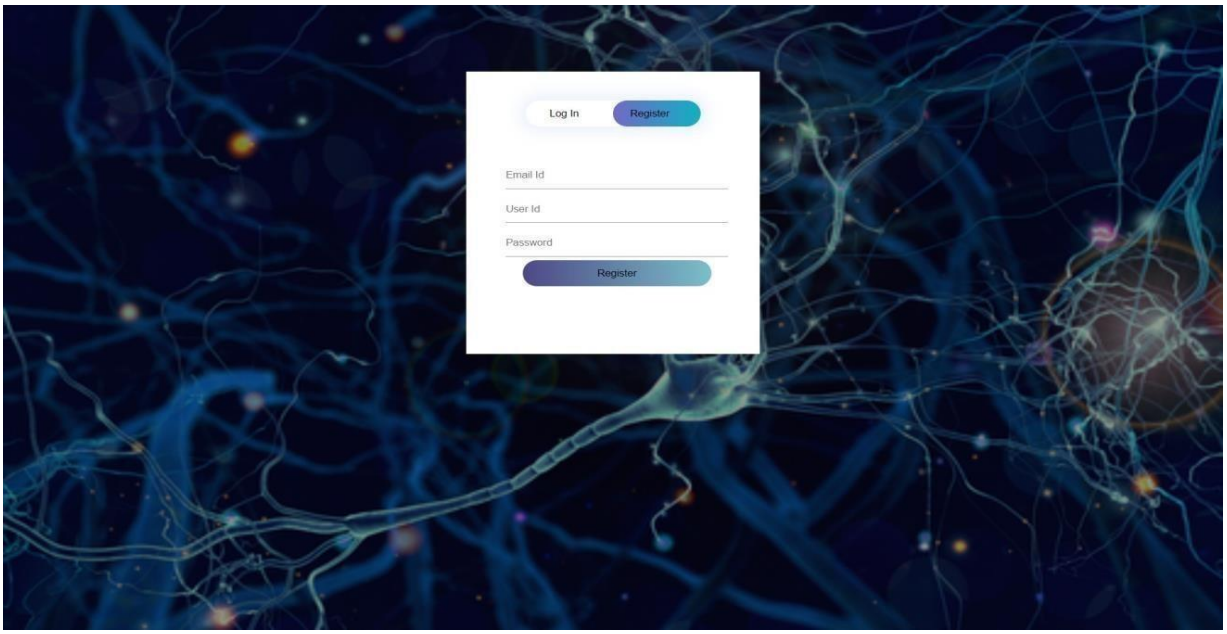
The purpose of testing is to discover errors. Testing is the process of trying to discoverevery conceivable fault or weakness in a work product. It provides a way to check the functionality of components, sub-assemblies, assemblies and/or a finished product. Itis the process of exercising software with the intent of ensuring that the Software system meets its requirements and user expectations and does not fail in an unacceptable manner.

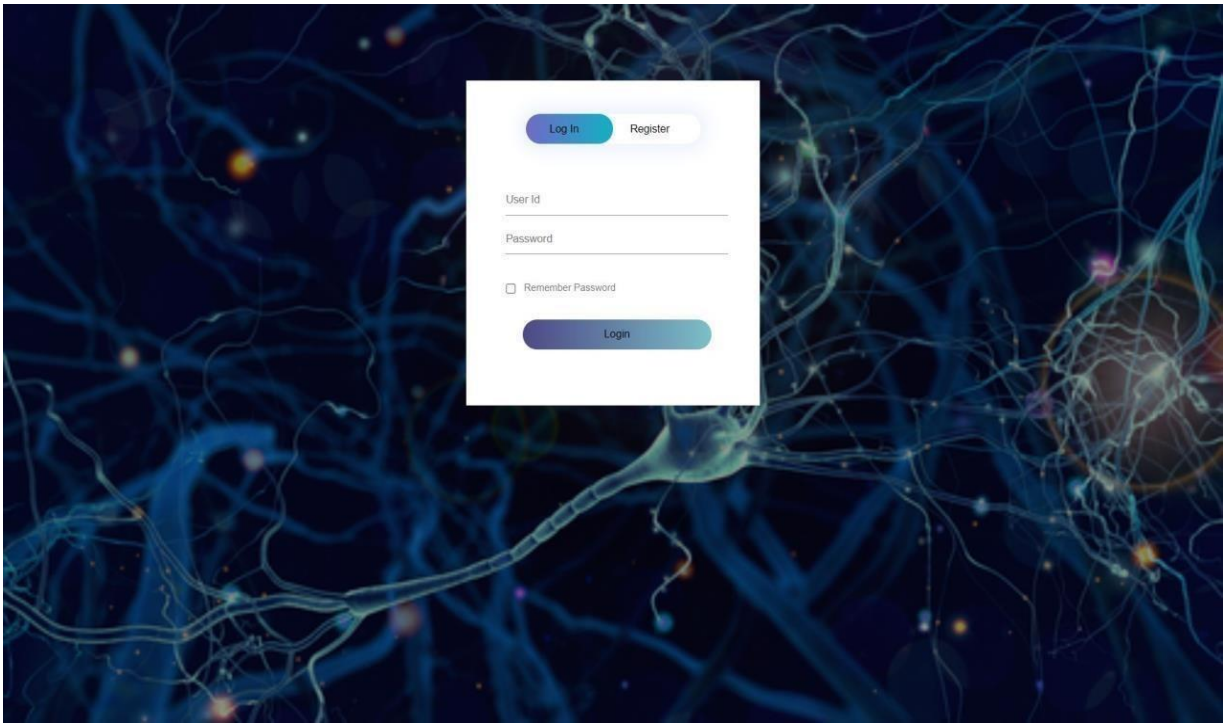
7.2 USER ACCEPTANCE TESTING

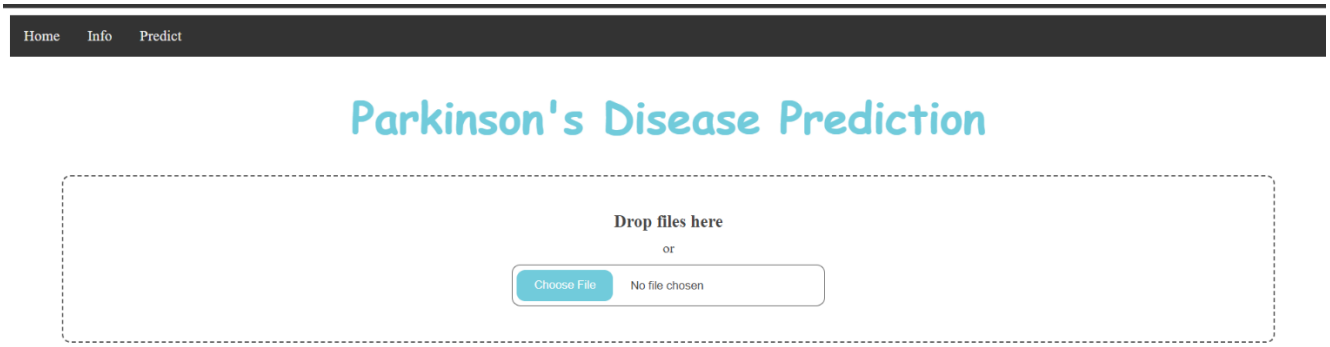
User Acceptance Testing is a critical phase of any project and requires significant participation by the end user. It also ensures that the system meets the functional requirements. All test cases are run at this point to ensure that the program is right andcomplete. The test must be completed successfully before the program can be acceptedby the customer. The customer formally approves the delivery of this system after customer workers have checked that the preliminary production statistics load is correct and that the test suite has been achieved with perfect results

CHAPTER 8

RESULTS 8.1






Home
Info
Predict
Parkinson's Disease Prediction
Drop files here
or
Choose File
No file chosen
Predict
Ohh No!!! You are affected by Parkinson's disease.. Don't Worry we'll cure it!!


Home
Info
Predict
Parkinson's Disease Prediction
Drop files here
or
Choose File
No file chosen
Predict
Ohh No!!! You are affected by Parkinson's disease.. Don't Worry we'll cure it!!

CHAPTER 9

9.1 ADVANTAGES.

Another significant indicator of illness progression may be handwriting. 2. Only image recognition allows for the effective automatic classification of PD. 3. We created the Archimedes spiral hand-drawing dataset without the use of templates or restrictions on application scenarios. 4. Our method has an accuracy rate for Parkinson's disease categorization of roughly 89.3%. 5. Due to the lack of the use of expensive tools, the cost of the material used is quite low.

9.2 DISAVANTAGES.

The suggested approach is the best way to blend static and dynamic handwriting traits for various tasks. 2. The method is less efficient for PD categorization than the performance of the various handwriting modalities. 3. This approach does not always yield accurate findings.

CHAPTER 10

CONCLUSION

Previous research only focused on a single imaging modality, such MRI or PET, or a single type of dementia, like AD. The proposed method tried to cover a wider spectrum of imaging and machine learning technologies for the diagnosis of mental diseases in order to enable researchers in the domain to swiftly identify the state of the art in the field. In order to provide patients with therapy and support as soon as possible and lessen the disease's effects, we also emphasize the importance of early Parkinson's disease prediction and detection

CHAPTER 11

FUTURE SCOPE

The non-invasive nature of this handwriting method makes it incredibly intriguing. Only specific figures must be drawn by the patient on a tablet. Medical decision support tools for PD identification and patient supervision can be created using this handwriting technique (after a positive diagnosis). In order to boost the accuracy of the diagnosis, it is now necessary to combine handwriting techniques based on symptoms like tremor, bradykinesia, and rigidity. In this situation, patient screening and the use of biomarkers can help to enhance healthcare. By doing so, doctors can concentrate on the patients who have the best chance of being diagnosed quickly. Early detection would enable 29 the creation of particular treatment plans for PD patients. The care of patients is crucial for tracking the development of PD.

CHAPTER 12

APPENDIX 12.1

```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<meta http-equiv="X-UA-Compatible" content="ie=edge">
<title>HomePage</title>
<style> body{
background-image: linear-gradient(rgba(218, 185, 231, 0.9), rgba(0,0,0,0.4)),url("https://i0.wp.com/cdn-prod.medicalnewstoday.com/content/images/articles/321/321337/blue-neuron-on-blue-background.jpg");
position: relative; background-size: cover;
background-repeat: no-repeat; height: 100%;
width: 100%;
}
h3{
text-align:center; color:white;
}
.main{
margin-top:100px;
}
p{
color:white;
text-indent:10px; margin:10px; font-size:20px;
}
.navbar{ margin: 0px; padding:20px;

background-color:rgb(169, 120, 159); opacity:0.6;
color:black;
font-family:'Arial',sans-serif; font-style: italic;
border-radius:20px; font-size:25px;
}
a{
color:rgb(11, 3, 21); float:right;
text-decoration:none; font-style:normal; padding-right:20px;
}
a:hover{
background-color:black; color:white;
```

```
border-radius:15px;
font-size:30px; padding-left:10px;
}
img{
width:450px; height:400px; padding:25px;

}
img:hover{
border-radius:100px; border-color:grey;
}
#im{
width:1450px; height:700px; padding:25px;
}
</style>
</head>
<body>
<div class="navbar">
<a href="/logout" >Logout</a>
<a href="/upload" >Predict</a>
<a href="/home">Home</a>
<a>Welcome!</a>
<br>
</div>
<br>
<center><b class="pd"><font color="white" size="15" font-family="Comic Sans MS" >Detecting Parkinson Disease using ML</font></b></center>
<div>
<br>
<br>
<center>
<p>Parkinson's disease (PD) is a prevalent neurodegenerative disease affecting about 1% of the world population over the age of 55 (Nussbaum and Ellis, 2003). About five million people worldwide are estimated to have PD. PD Prevalence is expected to double by the year 2030 . Parkinson's disease (PD) patient care is limited by inadequate, sporadic symptom monitoring, infrequent access to care, and sparse encounters with healthcare professionals leading to poor medical decision making and sub-optimal patient health-related outcomes. Recent advances in digital health approaches have enabled objective and remote monitoring of impaired motor function with the promise of profoundly changing the diagnostic, monitoring, and therapeutic landscape in PD.</p>
</center>
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title="Disease"></span>
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<img
src="http://media.eurekalert.org/multimedia_prod/pub/web/212358_web.jpg" title="Effect">
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<imgid="im" src="https://www.genengnews.com/wp-content/uploads/2019/06/203938_web.jpg" title="Stage">

</body>
</html>

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<!DOCTYPE
html>
<html lang="en">
<head>
<meta charset="UTF-8">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
<meta http-equiv="X-UA-Compatible" content="ie=edge">
<title>PredictionPage</title>
<style>
body{
background-image: url("https://img.freepik.com/free-vector/clean-medical-
background_53876-97927.jpg?w=2000");
position: relative;
background-size: cover;
background-repeat: no-repeat;
height: 100%;
width: 100%;
}
.main{
margin-top:100px;
}
.navbar{
margin: 0px;
padding:20px;
background-color:rgb(188, 245, 249);
opacity:0.6;
color:black;
font-family:'Roboto',sans-serif;
font-style: italic;
border-radius:20px;
font-size:25px;
}
a{
color:rgb(11, 3, 21);
float:right;
text-decoration:none;
font-style:normal;
padding-right:20px;
}
a:hover{
background-color:black;
color:white;
```

```
border-radius:15px;
font-size:30px;
 padding-left:10px;
 }
 h1{
 font-size:60px;
}


input[type="file"] {
display: none;
}
.loader {
border: 8px solid #f3f3f3; /* Light grey */
border-top: 8px solid #3498db; /* Blue */
border-radius: 50%;
width: 50px;
height: 50px;
animation: spin 1s linear infinite;
}


@keyframes spin {
0% { transform: rotate(0deg); }
100% { transform: rotate(360deg); }
}


</style>
</head>
<body>
<div class="navbar">
<a href="/logout" >Logout</a>
<a href="/upload" >Predict</a>
<a href="/home">Home</a>
<br>
</div>
<h1>Prevention is better than cure!</h1>
<h2><center>Parkinson Classifier</center></h2>
<h5>NOTE: Upload an spiral or wave page drawn by the user in a
white sheet</h5>
<div class="container">
<center> <div id="content" style="margin-top:2em">
<div>
```

```
<form id="upload-file" method="post" enctype="multipart/form-data">
<center>
<label for="imageUpload" class="upload-label">
Choose...
</label>
<input type="file" name="file" id="imageUpload" accept=".png, .jpg,
.jpeg">
</center>
</form>

<center> <div class="image-section" style="display:none;">

<div class="img-preview">
<div id="imagePreview">
</div></center>
</div>
<center>
<div>
<button type="button" class="btn btn-primary btn-lg " id="btn-
predict">Predict!</button>
</div>
</center>
</div>

<div class="loader" style="display:none;"></div>

<h3 id="result">
<span> </span>
</h3>
</div>
</center>
</div>
</body>
<footer>
<script src="{{ url_for('static', filename='js/main.js') }}"
type="text/javascript"></script>
</footer>
</html>
```

Home Info Predict

PARKINSON DISEASE DETECTION

Being Physically Fit Is A Choice!

Parkinson's disease is a progressive disorder that affects the nervous system and the parts of the body controlled by the nerves. Symptoms start slowly. The first symptom may be a barely noticeable tremor in just one hand. Tremors are common, but the disorder may also cause stiffness or slowing of movement.

Live In The Moment

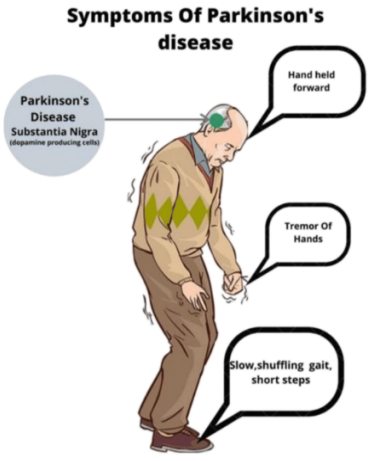
Home Info Predict

PREVENTION IS BETTER THAN CURE!

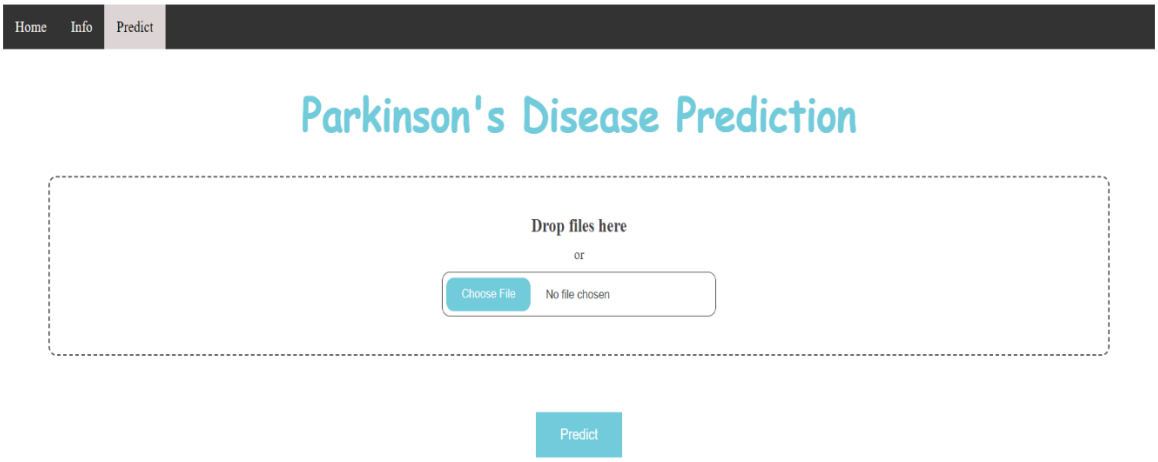
Nothing..Just Listen.

Prevention. Parkinson's disease is a neurological condition with a wide range of effects, including problems with movement, blood pressure and thinking, and mood, sensory, and sleep difficulties. The symptoms of Parkinson's disease (PD) usually begin gradually, and they affect each person differently. The symptoms a person has will vary widely, regardless of how severe they are or how quickly they develop.

Stay Healthy



127.0.0.1:5000/info


Home
Info
Predict
Parkinson's Disease Prediction
Drop files here
or
Choose File
No file chosen
Predict


Home
Info
Predict
Parkinson's Disease Prediction
Drop files here
or
Choose File
No file chosen
Predict
Ohh No!!! You are affected by Parkinson's disease.. Don't Worry we'll cure it!!


Home
Info
Predict
Parkinson's Disease Prediction
Drop files here
or
Choose File
No file chosen
Predict
Ohh No!!! You are affected by Parkinson's disease.. Don't Worry we'll cure it!!

REFERENCES

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