



DISSERTATION PROGRESS BOOK

Name of the student:

- 1] **Mr. Chetan A. Muneshwar**
- 2] **Mr. Raunak J. Pipariya**
- 3] **Miss. Shreya N. Nathile**
- 4] **Mr. Amit S. Khandare**

Course: - BE (Computer Science and Engineering)

Year of Admission: 2023

Name of the Internal Guide: **Prof. M. K. Popat**

Dissertation Title: **“Brain Tumor Detection Using Deep Learning”**

Area of Work: Machine Learning and Deep Learning

Department of Computer Science and Engineering

Jawaharlal Darda Institute of Engineering & Technology

Yavatmal, (M.S), India-445001

Session 2023-2024

GUIDELINES

1. Handle the progress book carefully.
2. Student must enter the correct information in the progress book.
3. All the entries in the progress book should be verified by the concerned guide.
4. Student must report to their respective guide as per the time table.
5. Activity planned should be completed as per the schedule.
6. Submit soft & hard copies of Synopsis & Dissertation reports as per University & College guidelines.
7. This book, along with soft & hard copies of publications must be submitted to Guide / Coordinator / before final submission of dissertation.

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UNDERTAKING BY THE STUDENT

We Mr. / Ms. / Mrs.

1] Mr. Chetan A. Muneshwar

2] Mr. Raunak J. Pipariya

3] Miss. Shreya N. Nathile

4] Mr. Amit S. Khandare

Student B.E (Computer Science and Engineering) is hereby assured that we will follow the rules and regulation formulated by JDIET Yavatmal, Amravati University and Collegeregarding dissertations work.

The dissertation work entitled-

“Brain Tumor Detection Using Deep Learning”

Will be fully designed / developed by us and assure; this work will be assigned work.

Name & Signature of the Students

Date:

Place:

SPONSORSHIP (If Applicable)

Paste Visiting Card Here

Name of Sponsor:

Address:

Tel. No.:

Mobile No.:

Fax:

Website:

Person to Contact / Guide:

1. _____

Mobile No.:

Email ID:

2. _____

Mobile No.:

Email ID:

PERT CHART OF THE DISSERTATION WORK

Dissertation (Project) Schedule

Semester VIII (prepare this sheet for complete subgroup)

Sr. No.	Activity Schedule	Date
1	Selection of topic.	13/10/2023
2	Discussion regarding the selected topic.	14/10/2023
3	Collected different reference papers related to the topic.	16/10/2023
4	Study of references.	16/10/2023
5	Preparation of synopsis.	17/10/2023
6	Submission of the synopsis.	18/10/2023
7	Decided aim & objective of the project.	20/10/2023
8	Study on literature review.	26/10/2023
9	Defining problem statement.	30/10/2023
10	Analysis of the problem.	12/01/2024
11	Motivation to the project.	16/01/2024
12	System requirement analysis.	18/01/2024
13	Deep study of the components required.	19/01/2024
14	Discussion regarding the first demo.	20/01/2024
15	Gathering information & contents regarding first demo.	23/01/2024
16	Preparation of presentation for the demo.	24/01/2024

PERT CHART OF THE DISSERTATION WORK

Dissertation (Project) Schedule

Semester VIII (prepare this sheet for complete subgroup)

Sr. No.	Activity Schedule	Date
17	Practice for the presentation.	25/01/2024
18	Presented our first demo on analysis.	31/01/2024
19	Further study for the design phase.	1/02/2024
20	Installation of the software application required.	6/02/2024
21	Deciding the approach to the model.	8/02/2024
22	Complete planning regarding the designing of the model.	7/02/2024
23	Decided to work first on the web page.	13/02/2024
24	Started implementing the web page.	15/02/2024
25	Working on the code to remove errors.	21/02/2024
26	Tested the code and executed it successfully.	23/02/2024
27	Working on the development of software.	28/02/2024
28	Completed with all the setup.	1/03/2024
29	Testing the working of the model.	6/03/2024
30	Working on the PPT for the second demo.	11/03/2024
31	Practice for the presentation of the demo.	14/03/2024
32	Presented our second demo.	18/03/2024

PERT CHART OF THE DISSERTATION WORK

Dissertation (Project) Schedule

Semester VIII (prepare this sheet for complete subgroup)

Sr. No.	Activity Schedule	Date
33	Started study for the implementation.	19/03/2024
34	Started coding for linking using python.	21/03/2024
35	Testing the code and working on it to remove errors.	19/03/2024
36	Successfully executed the code.	22/03/2024
37	Removing bugs.	26/03/2024
38	Done Removing code.	27/03/2024
39	Done with the development of the Model and Interface.	28/03/2024
40	Completed with all the setup and tested the working of the complete model.	30/03/2024
41	Preparations and practice of the presentation for the final demo.	02/04/2024
42	Working on the paper to publish.	04/04/2024
43	Done with the paper publishing.	05/04/2024
44	Preparation of the presentation for the final demo.	06/04/2024
45	Practice of the presentation for the final demo.	10/04/2024
46	Gathering information for thesis.	10/04/2024
47	Presented our Final Demo.	10/04/2024
48	Submission of project and the thesis.	10/04/2024

ABSTRACT

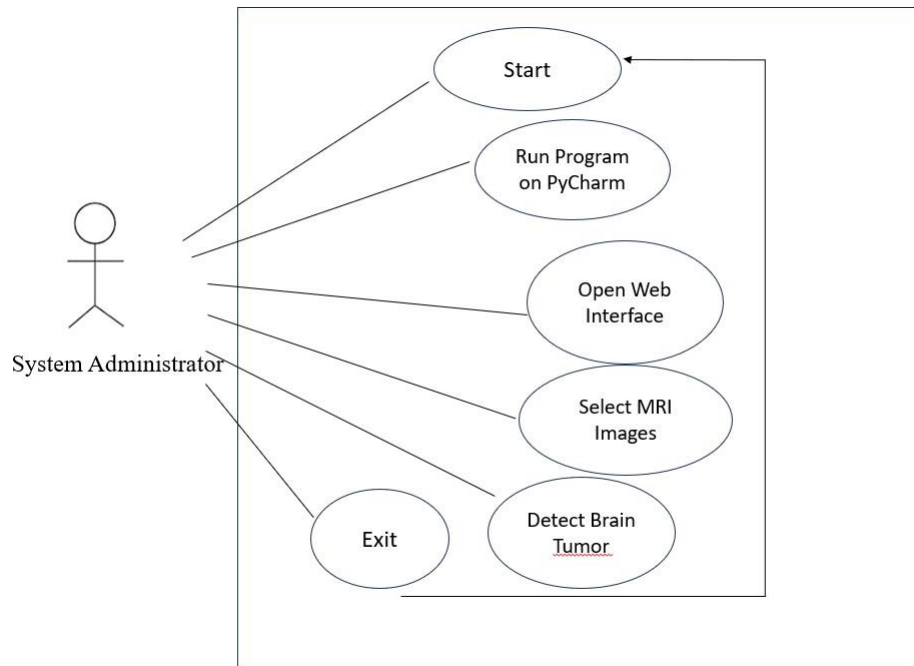
Brain tumor detection is a critical aspect of modern healthcare, as early diagnosis and accurate localization are vital for effective treatment and patient outcomes. Deep learning techniques have shown remarkable potential in addressing this challenge. This study presents a novel approach for brain tumor detection using deep learning mechanism. We employ a convolutional neural network (CNN) architecture that is tailored to analyze medical images, specifically magnetic resonance imaging (MRI) scans. The model is trained on a large dataset of annotated MRI images, enabling it to learn intricate patterns and features indicative of brain tumors. The CNN's multi-layered structure enables to automatically extract relevant features, minimizing the need for handcrafted feature engineering.

Results demonstrate the effectiveness of the proposed approach, achieving high accuracy and sensitivity in brain tumor detection. This approach not only aids in early diagnosis but also offers the potential for real-time detection and localization, contributing to improved transplant planning. The use of deep learning in brain tumor detection promise for enhancing healthcare outcomes and reducing the burden on radiologist, paving the way for more efficient and accurate diagnosis and treatment of brain tumors.

Keywords: *Brain tumor detection, Deep learning, Convolutional neural network (CNN), Medical images, Healthcare, Magnetic resonance imaging (MRI)*

WORK DETAILS

1. Use Case Diagram of proposed system



Required H/W, S/W platforms:

Hardware used: -

- [1] Processor: Intel Pentium IV or above
- [2] RAM: 2 GB or above
- [3] Storage: 500 GB or above

Software used: -

- [1] operating system: Windows 10 or above
- [2] Browser: Chrome, Edge, Brave or any type of browser.
- [3] User Interface (UI) Technologies: HTML, CSS, and JavaScript for building the interface.
- [4] Programming Languages: Used programming languages suitable for web application development, such as Python 3.12.
- [5] IDE: PyCharm (Integrated Development Environment)

Performance measures & testing procedure:

An automated method achieved an overall accuracy of 91.667% and took only 0.81432 seconds to detect brain tumor, demonstrating computational efficiency. Various methods have been employed for automatic identification and defining which tumor is occurring, including image processing techniques and machine learning approaches.

Measures the number of correctly identified samples belonging to a given class out of all samples belonging to that class. It is an important metric in evaluating the performance of Brain Tumor Detection algorithms

The proposed algorithms have been tested on publicly available datasets, showing accurate identification of Brain Tumor. The study tested different image to evaluate detection accuracy, showing higher accuracy for larger images due to better resolution.

In conclusion, the use of image processing techniques and machine learning models to demonstrated high accuracy and efficiency in automatically detection of Brain Tumor in MRI images, offering a valuable tool for medical laboratory personnel in the analysis of blood samples.

Referred books / Paper:

- [1]. Retrieved from <https://google.com>, <https://simple.m.wikipedia.org>
<https://en.m.wikipedia.org> 2023.
- [2]. S. Pereira, A. Pinto, V. Alves, C.A. Silva. (2016). “*Brain tumor segmentation using convolutional neural networks in MRI images*”, IEEE transactions on medical imaging, pp.1240-1251, 2016. <https://doi.org/10.1109/TMI.2016.2538465>.
- [3]. Sneha Grampurohit, Venkamma Shalavadi, Vaishnavi R. Dhotargavi, Megha Kudari, Mrs Soumya Jolad “*BRAIN TUMOR DETECTION USING DEEP LEARNING MODELS*” 2020 IEEE India Council International Subsections Conference (INDISCON).
- [4]. David N. Louis, Arie Perry, et al., “*The 2016 World Health Organization Classification of Tumors of the Central Nervous System: a summary*”, Acta Neuropathol, Springer May 2016.
- [5]. X.W. Gao, R. Hui, Z. Tian. (2017). “*Classification of CT brain images based on deep networks, Computer methods and programs in biomedicine*”, pp.49-56, Jan 2017. <https://doi.org/10.1016/j.cmpb.2016.10.007>.
- [6]. Bangio, T. et al. (2014). “*Representation Learning: A Review and New Perspectives*.” IEEE Transactions on Pattern Analysis and Machine Intelligence. 36 (9): 1698–1728.
- [7]. Sneha Grampurohit, Venkamma Shalavadi, Vaishnavi R. Dhotargavi, Megha Kudari, Mrs Soumya Jolad “*BRAIN TUMOR DETECTION USING DEEP LEARNING MODELS*” 2020 IEEE India Council International Subsections Conference (INDISCON) | 978-1-7281-8734-1/20/\$31.00 ©2020 IEEE | DOI: 10.1109/INDISCON50162.2020.00037.
- [8]. Minu Samantaray, Millee Panigrahi, K.C. Patra, Avipsa S. Panda, Rina Mahakud “*An adaptive filtering technique for brain tumor analysis and detection*” 2016 10th International Conference on Intelligent Systems and Control (ISCO).
- [9]. P. K. Chahal, S. Pandey, and S. Goel, “*A survey on brain tumor detection techniques for MRI images*,” Multimedia Tools Appl., vol. 79, nos. 29–30, pp. 21771–21814, May 2020.
- [10]. B. Srinivas and G. S. Rao, “*Unsupervised learning algorithms for MRI brain tumor segmentation*,” 2018 Conference on Signal Processing and Communication Engineering Systems (SPACES), Vijayawada, 2018, pp. 181-184.
- [11]. Gajendra Raut, Aditya Raut, Jeevan Bhagade, Jyoti Bhagade and Sachin Gavhane “*Deep Learning Approach for Brain Tumor Detection and Segmentation*” 2020 IEEE International Conference on Convergence to Digital World – Quo Vadis (ICCDW 2020).

[12]. Prof. Kavita Bathe, Varun Rana, Sanjay Singh, Vijay Singh “*Brain Tumor Detection Using Deep Learning Techniques*” Proceedings of the 4th International Conference on Advances in Science & Technology (ICAST2021).

[13]. Razia Sultana Misu ID: 193-15-2976 “*Brain Tumor Detection Using Deep Learning Approaches*”.

MONTHLY PLANNING SHEET (For Project)

Month: January

Sr. No.	Activities planned with Duration	Remarks	Signature of the Student	Signature Int. / Ext. Guide
1	Searching for the different topics, we selected the 3-topic based on Brain Tumor Detection by Using Deep Learning Technique finalized one topic.			
2	Selection of the topic, collected and different reference papers related to the topic.			
3	Conducted a deep study of the reference papers to understand different working methodologies.			
4	Gathered information relevant to the topic and analyzed it properly.			
5	Started working on the preparation of the project synopsis.			

MONTHLY PLANNING SHEET (For Project)

Month: February

Sr. No.	Activities planned with duration	Remarks	Signature of the Student	Signature Int. / Ext. Guide
6	Completed and submitted the project synopsis.			
7	Decided what will be the aim & objective and motivation of our project and conduct a deep study on the literature review and also define the problem statement of the project and conducted analysis of the problem.			
8	Analyzed the requirement for the development of the model i.e software and also studied the working of each of each component that will be used in the project.			
9	Carried out the discussion regarding the first demo of our project, gathered information and prepared the PPT and practiced for the first demo.			
10	Presented our first demo which was based on Analysis.			

MONTHLY PLANNING SHEET (For Project)

Month: March

Sr. No.	Activities planned with duration	Remarks	Signature of the Student	Signature Int. / Ext. Guide
11	After our first demo we started working on our second demo, with the help of Python Programming language for coding.			
12	Started coding for our project and we almost completed 60-70% of the work of our project.			
13	Decided to add new things to the project as per guide's suggestions.			
14	We studied the algorithms which are used in the project.			
15	Successfully done with second demo. By showing the 60-70% of project demo and PPT.			
16	Starting coding for the remaining part of the project and successfully completed the code.			

MONTHLY PLANNING SHEET (For Project)

Month: April

Sr. No.	Activities planned with duration	Remarks	Signature of the Student	Signature Int. / Ext. Guide
17	Successfully completed the project and started preparation for the third demo of project. Prepared a PPT for the third demo.			
18	Successfully presented the third demo of our project			
19	After successful completion of our third demo, we started working on the remaining work of the paper. And then we submitted the paper to the journal for publishing it.			
20	Started working on the thesis. Arranged all the data as per thesis format and distributed the thesis work in our group. And started preparing the thesis.			
21	Successfully completed the thesis work. Submitted the thesis.			

**Jawaharlal Darda Institute of Engineering & Technology,
Yavatmal
Department of Computer Science and Engineering**

**UG DISSERTATION PROGRESS REPORT (After 1st Demo)
Semester-VIII**

Date: 30/01/2024

Title of Dissertation: “Brain Tumor Detection Using Deep Learning.”

1. Work done:

After finalizing the project topic, we started collecting reference papers for it. After collecting reference papers, we studied the reference papers. Our first demo was based on the analysis of the project. So, we prepared a PPT for the first demo presentation. In the first demo, we presented a seminar on the topics including introduction, literature review, problem statement, objective, proposed work, and features. We also included data flow diagrams in the presentation.

2. Future planned Work:

First demo of the project was about the introduction to the project and analysis of the project. Since it was the analysis phase of the project, no implementation of the project was done in the first demo. So, we started collecting all the software for building our project.

**Name & Signature
of the Student**

**Name & Signature
of Guide**

**Name & Signature
of Coordinator**

**Jawaharlal Darda Institute of Engineering & Technology,
Yavatmal
Department of Computer Science and Engineering**

UG DISSERTATION PROGRESS REPORT (After 2nd Demo)

Semester-VIII

Date: 18/03/2024

Title of Dissertation: “Brain Tumor Detection Using Deep Learning.”

3. Work done:

We had done working on the coding part of the project. We installed PyCharm IDE for coding. After that we created GUI page for our system. In brief, we completed the 60-70% of the project and we had shown the implementation of our project.

4. Future planned Work:

After second demo we planned to detect Brain Tumor with the help of image processing technique by using deep learning. Where we will be performing some technique on MRI images of which containing Brain Tumor.

**Name & Signature
of the Student**

**Name & Signature
of Guide**

**Name & Signature
of Coordinator**

**Jawaharlal Darda Institute of Engineering & Technology,
Yavatmal
Department of Computer Science and Engineering
UG DISSERTATION PROGRESS REPORT (After 3rd Demo)**

Semester-VIII

Date: 10/04/2024

Title of Dissertation: “Brain Tumor Detection Using Deep Learning.”

5. Work done:

We successfully completed the coding part and implement CNN algorithms in our project. We finally run our project and got our expected output.

6. Future planned Work:

Successfully completed the project. And planned to prepare documentation of the project like project thesis, project report.

7. Publications:

[I] “A Review on Different Brain Tumor Detection Techniques.”

International Journal of Advanced Research in Science, Communication and Technology (IJARSCT) International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal Volume 4, Issue 1, April 2024

1. Mr. Chetan A. Muneshwar
2. Mr. Raunak J. Pipariya
3. Prof. Mohit K. Popat

Final Year Students, Department of Computer Science and Engineering 1,2
Assistant Professor, Department of Computer Science and Engineering 3
Jawaharlal Darda Institute of Engineering and Technology, Yavatmal, Maharashtra, India

[I] “Brain Tumor Detection and Classification Using Deep Convolutional Neural Networks on MRI Images”

International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)Volume:06/Issue:06/April-
2024 Impact Factor- 7.868 www.irjmets.com

1. Miss. Shreya N. Nathile
2. Mr. Amit S. Khandare
3. Prof. Mohit K. Popat

Final Year Students, Department of Computer Science and Engineering 1,2
Assistant Professor, Department of Computer Science and Engineering 3
Jawaharlal Darda Institute of Engineering and Technology, Yavatmal, Maharashtra, India

8. Achievements:

Successfully completed the project with the expected output.

**Name & Signature
of the Student**

**Name & Signature
of Guide**

**Name & Signature
of Coordinator**

APPLICATION FOR PRE-SUBMISSION DEMONSTRATION (If Applicable)

To,

Head of Department,
Dept. of Computer Science and Engg.,
Jawaharlal Darda Institute of Engineering & Technology,

Date:

Subject: Permission for Pre-submission demonstration.

Respected Sir,

We Mr/Ms./Mrs. 1. Mr. Chetan A. Muneshwar
2. Mr. Raunak J. Pipariya
3. Miss. Shreya N. Nathile
4. Mr. Amit S. Khandare

Student of B.E. (CSE), [Date of Admission _____] With this application we are requesting you to permit us for the pre-submission demonstration of B.E. dissertation work.

Thanking You,

Yours sincerely,
(Signature of the candidates)

Guides Recommendation:

I have evaluated the work of candidates Mr./Mrs/Ms _____

It is up to the mark. Candidates has also fulfilled all the requirements of project submission. I am recommending the candidates for pre-submission demonstration.

Name & Signature of the Guide:

UG Coordinators(P&S) Remark: All requirements for Pre-submission demo are fulfilled.

Signature of the Coordinator:

HOD Remark: _____

Signature of HOD

Jawaharlal Darda Institute of Engineering & Technology, Yavatmal
Department of Computer Science and Engineering

**SUMMARY OF PRESUBMISSION
PRESENTATION & DEMONSTRATION
(If Applicable)**

Sr. No.	Name of the committee member	Suggestions	Signature of the committee member
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

Overall Remarks:

Recommended / Not recommended

Signature of the Guide

**DETAILS OF MEETING BETWEEN INTERNAL AND
COGUIDE GUIDES (If Applicable) (for Guide)**

Semester VIII

Sr. No.	Date	Venue	Summary of Discussion	Signature
1	10/01/2024	LC2	Selection of the topic.	
2	12/01/2024	LC2	Deciding aim & objective	
3	17/01/2024	LC2	Study on the literature review	
4	20/01/2024	LC2	Definition of problem statement	

**DETAILS OF MEETING BETWEEN INTERNAL AND
COGUIDE GUIDES (If Applicable) (for Guide)**

Semester VIII

Sr. No.	Date	Venue	Summary of Discussion	Signature
5	20/01/2024	LC2	Analysis of problem	
6	20/01/2024	LC2	System requirement analysis	
7	29/01/2024	LC2	Preparation of the first demo	
8	30/01/2024	LC2	First Demo on project	

**DETAILS OF MEETING BETWEEN INTERNAL AND
COGUIDE GUIDES (If Applicable) (for Guide)**

Semester VIII

Sr. No.	Date	Venue	Summary of Discussion	Signature
9	06/02/2024	LC2	Installation of software	
10	14/02/2024	LC2	Preparation of the second demo	
11	17/02/2024	LC2	Second demo on project	
12	23/02/2024	LC2	Count Brain Tumor from MRI Images	

**DETAILS OF MEETING BETWEEN INTERNAL AND
COGUIDE GUIDES (If Applicable) (for Guide)**

Semester VIII

Sr. No.	Date	Venue	Summary of Discussion	Signature
13	02/03/2024	LC2	Connecting Database and collecting information	
14	07/03/2024	LC2	Collecting information on Brain Tumor and its Types	
15	15/03/2024	LC2	Detect Different types of Tumor by using MRI images	
16	18/03/2024	LC2	Third demo on project	

PARTICIPATION IN CONFERENCES / WORKSHOP

[illegible]

(Attach Xerox copy of certificate/s)

PAPER PUBLICATIONS / PRESENTATIONS

[illegible]

Paste the Certificate / Publications here