DEPARTMENT OF APEX INSTITUTE OF TECHNOLOGY

# PROJECT PROPOSAL

## 1. Project Title: -

Make a product based on the concept of Machine Learning-driven Pneumonia Detection System.

## 2. Project Scope: -

Pneumonia is a life-threatening lung infection resulting from several different viral infections. Since pneumonia resembles other lung diseases, identifying and treating it on chest X-ray pictures can be difficult.

1. System Objectives: The primary objective of the system is to help healthcare professionals accurately diagnose and treat pneumonia in patients.
2. Functional Requirements: The system should include the following functionalities:

* Collect patient information: The system should be able to collect relevant patient data via X-Ray image.
* Analyze patient data: The system should be able to analyze the collected patient data and provide a diagnosis of pneumonia.
* Provide treatment recommendations: The system should be able to provide treatment recommendations based on the diagnosis and the patient's medical history.
* Alert healthcare professionals: The system should alert healthcare professionals if it detects a critical case of pneumonia that requires urgent attention.

1. Non-functional Requirements: The system should meet the following non-functional requirements:

* Accuracy: The system should have a high level of accuracy in diagnosing pneumonia to avoid misdiagnosis and improve patient outcomes.
* Speed: The system should be able to provide a diagnosis and treatment recommendations quickly to ensure timely treatment.
* Security: The system should protect patient data and maintain the privacy of the patient's personal information.
* Usability: The system should be user-friendly and easy to use for healthcare professionals.

1. System Limitations: The system should have some limitations to ensure that healthcare professionals do not rely solely on the system for diagnosis and treatment recommendations. It should be used as a tool to assist healthcare professionals in their decision-making process.
2. Project Deliverables: The project deliverables would include the following:

* Software system: A working software system that includes the functionalities outlined in the functional requirements.
* User Manual: A user manual that explains how to use the system and its functionalities.
* Testing and Validation: A report outlining the testing and validation process used to ensure the accuracy, speed, security, and usability of the system.

## 3. Requirements: -

* Hardware Requirements

1. Personal Computer
2. Jupyter Notebook

* Software Requirements

1. OpenCV
2. CNN
3. Keras
4. Image Processing
5. Python

**STUDENTS DETAILS**

| **Name** | **UID** | **Signature** |
| --- | --- | --- |
| RAVI PRAKASH | 20BCS6033 | Ravi |
| Dillmet | 20BCS6699 | Dillmet |
| ABHISHEK VERMA | 20BCS6707 | Abhishek |
| SRI KUMAR DAS | 20BCS6629 | Sri Kumar |

**APPROVAL AND AUTHORITY TO PROCEED**

We approve the project as described above, and authorize the team to proceed.

| **Name** | **Title** | **Signature**  **(With Date)** |
| --- | --- | --- |
| Siddharth Kumar | **Supervisor** |  |