Idea Abstract for Productathon AI

Title of the Project

AI-Driven Respiratory Health Management System

Team Name and Members

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Executive Summary

- Analyze chest X-ray images to identify characteristic patterns associated with pneumonia, enabling rapid diagnosis.
- Analyze symptoms to identify early signs of asthma , enabling proactive management.
- An interactive chatbot to help the users with any questions.
- A Visual tool that uses a severity and scale index to show how serious the illness is along with the areas of high concern.
- This innovation can significantly reduce diagnostic delays, enhance treatment outcomes, and decrease the burden on healthcare systems.

Problem Statement

- Identification:

Create a software program to improve the extraction of features from lung radiography images and display the results in an easily understandable format.

- Significance:

Shortage of radiologists escalates workloads, causing delays in reports. Common errors in radiology pose potential life-threatening consequences. Timely identification can lead to prompt treatment, potentially saving lives, and reducing the burden on healthcare systems.

Proposed Solution

- **Description**:An AI tool which receives Lung X rays as input and detects probability of having pneumonia and also a visual tool which helps in further understanding of the diagnosis. It also predicts asthma based on survey data (cough, fever, fatigue). It will also have a chatbot which will help in resolving all queries/doubts the user might have.

- **Innovation**: A visual tool that uses a severity and scale index to show how serious the illness is along with the areas of high concern. An interactive chatbot (NLP) to help the general public with their needs/queries,Feedback form.

- **Technology Stack**:Python,Tensorflow,Streamlit.

Feasibility and Implementation

- Practicality:

- Software is easily scalable and reliable.
- This is an online AI tool which is available to everyone.

- Development Plan:

1. Finding dataset
2. Model Creation and training
3. Validation and testing of model
4. Designing a good UI
5. Continuous learning and improvement
6. Expanding disease types
7. Integration with healthcare systems
8. Connecting with NGOs for reach

Conclusion

In conclusion, the AI tool for pneumonia and asthma detection, featuring a user-friendly visual interface and feedback system, enhancing efficiency. Early diagnosis facilitates early intervention, and significantly improves patient outcomes.

References (if any)

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- [4] Understanding and Confronting Our Mistakes: The Epidemiology of Error in Radiology and Strategies for Error Reduction - PubMed (nih.gov)