PROJECT INITIALIZATION AND PLANNING PHASE

Date	15 March 2024
Team ID	LTVIP2024TMID24981
Project Name	Deep learning techniques for breast cancer prediction
Maximum Marks	3 Marks

TITLE: DEEP LEARNING TECHNIQUES FOR BREAST CANCER PREDICTION

OVERVIEW:

Breast cancer is one of the most prevalent and life-threatening diseases affecting millions of women globally. Early and accurate detection of breast cancer significantly increases the chances of successful treatment and patient survival. Traditional diagnostic methods, including mammograms, biopsies, and clinical examinations, are often time-consuming, prone to human error, and may result in false positives or negatives, leading to unnecessary procedures or delayed treatment. There is an urgent need for a more efficient, reliable, and automated system to assist healthcare providers in diagnosing breast cancer earlier and with greater precision.

PROBLEM STATEMENT:

This problem statement emphasizes the need for a solution that addresses key challenges in breast cancer diagnosis, such as accuracy, scalability, and accessibility, while also highlighting the potential of deep learning to transform healthcare.

HEALTH CARE PROVIDER SIDE:

I am	A Healthcare provider	Such as an oncologist or radiologist, who is responsible for diagnosing breast cancer in patients. I work in a fast-paced clinical environment and need to ensure that I provide accurate, timely diagnoses to improve patient outcomes.

I'm trying to:	Accurately detect and diagnose breast cancer at the earliest possible stage, using medical imaging (like mammograms or ultrasounds)	To increase survival rates and reduce the need for invasive treatments.
But:	The current diagnostic methods are time-consuming	Prone to human error, and often result in false positives or negatives. This increases the risk of delayed treatment or unnecessary interventions, which could negatively affect my patient's health and well-being.
Because:	I am limited by the availability of skilled professionals	Inconsistencies in interpreting imaging results, and the lack of advanced tools that can support my decision-making. Furthermore, medical facilities, especially in low-resource regions, struggle to access the latest diagnostic technologies.
Which makes me feel:	Concerned and frustrated because I want to offer my patients the best possible care	But the existing barriers make it difficult to ensure that each patient receives an accurate and timely diagnosis. This can lead to anxiety for both patients and healthcare professionals and potentially worsen outcomes for those with breast cancer.

CUSTOMER (OR) PATIENT_SIDE:

Problem Statement (PS) for patients	I am (Customer)	I'm trying to	But	Because	Which makes me feel
A middle-aged woman has discovered a lump in her breast and is urgently seeking an accurate diagnosis. However, she faces significant delays in getting appointments and receiving test results, leaving her anxious and uncertain about her condition.	A middle-aged woman who has recently discovered a lump in her breast and is anxious about my health.	Get an accurate diagnosis as quickly as possible to understand if it's cancer and begin treatment if necessary.	The waiting time for appointments and test results is very long, and I feel uncertain about what's happening.	There aren't enough specialist available, and the hospital is overwhelm-med with patients, which causes delays.	Worried and helpless, fearing that the delay might allow the cancer to grow and reduce my chances of recovery.
A young woman with a family history of breast cancer is proactive about getting regular screenings. However, she finds the current screening methods uncomfortable, and the results often vary depending on the radiologist, leading to inconsistent diagnoses.	A young woman with a family history of breast cancer, who is proactive about getting regular screenings.	Monitor my health using annual mammograms and stay ahead of any potential issues, given my family history.	The current screening methods are uncomfortable, and the results are not always reliable, leading to conflicting opinions from doctors.	The technology used is outdated, and interpreting the results depends heavily on the radiologist's experience, which varies.	Frustrated and anxious, unsure if I'm truly getting the most accurate assessment of my breast health.