

ABSTRACT

Liver cirrhosis is a critical health condition that can lead to severe complications if not diagnosed and managed timely. The project leverages machine learning techniques to facilitate early and accurate detection of liver cirrhosis using patient data. Utilizing the ILPD dataset from the UCI repository, we trained an ensemble model comprising Random Forest, XGBoost, and Gradient Boosting algorithms to enhance prediction accuracy. The model predicts the presence of liver cirrhosis based on essential liver function parameters such as age, gender, AG ratio, total bilirubin, direct bilirubin, alkaline phosphatase, SGPT, SGOT, total proteins, and albumin.

The system accepts user data either through manual entry or by uploading liver function test reports, from which we extract the necessary parameters using image processing techniques. The prediction results are displayed on a user-friendly webpage, providing an accessible interface for patients and healthcare providers. Additionally, the project includes a comprehensive analysis feature that tracks the progress of each patient's liver function parameters over time, presenting this information through intuitive graphs. This dual approach of prediction and continuous monitoring aims to improve patient outcomes by facilitating early diagnosis and personalized treatment plans, making significant strides in the field of liver disease management.