TITLE:

Fake Currency Detection: ML

Classification for identifying Counterfeit Currency

Introduction:

Counterfeit currency poses a significant threat to financial systems and economies worldwide. Our project aims to address this issue by developing a robust machine learning model for the detection of counterfeit currency notes.

Libraries and Technologies Used:

To achieve our goal, we employed the following libraries and technologies:

Python programming language for development.

Scikit-learn for machine learning algorithms implementation.

NumPy and Pandas for data manipulation and preprocessing.

Matplotlib and Seaborn for data visualization.

Flask for creating a web-based interface for currency verification.

Design and Flow of the Project:

The project follows a systematic approach:

Data Collection: We gathered a dataset consisting of genuine and counterfeit currency notes, including various denominations and features.

Preprocessing: Data preprocessing techniques such as normalization, feature scaling, and outlier detection were applied to prepare the dataset for training.

Feature Selection: Relevant features such as watermark, security thread, serial number, and denomination were selected for model training.

Model Training: Machine learning algorithms such as Random Forest, Support Vector Machines (SVM), and Logistic Regression were trained and evaluated using the prepared dataset.

Web Interface: A user-friendly web interface was developed using Flask, allowing users to upload an image of a currency note for verification.

Currency Verification: Upon image upload, the system processes the image and employs the trained machine learning model to classify the currency note as genuine or counterfeit.

Expected Output:

Our project aims to provide a reliable and efficient solution for counterfeit currency detection using machine learning techniques. The expected output includes a user-friendly web application that allows users to verify the authenticity of currency notes quickly and accurately. By leveraging advanced machine learning algorithms and image processing techniques, we anticipate achieving high accuracy in identifying counterfeit currency notes, thereby contributing to the prevention of financial fraud and ensuring the integrity of currency systems.

Conclusion:

our project demonstrates the effectiveness of machine learning in combating counterfeit currency, offering a practical and scalable solution for financial institutions and individuals to safeguard

against fraudulent activities.