Concept Paper: A Web-based Marketplace for Buying and Selling Second-hand Mobile Phones with AI-Powered Price Prediction

1. Title of the Project

SmartResell: A Marketplace for Second-hand Mobile Phones with AI-Driven Price Suggestion

2. Introduction and Background

The second-hand mobile phone market has grown with increasing demand for affordable smartphones. However, platforms like HamroBazar and SastoDeal lack intelligent pricing tools and effective communication, often leading to delays or failed transactions. **SmartResell** proposes a web-based platform where users can buy and sell second-hand mobile phones. It will feature an AI-powered price prediction system to guide sellers in setting fair prices, improve communication between buyers and sellers, and track interactions to enhance engagement and analytics.

3. Problem Statement

- **Lack of Data-Driven Price Guidance**: Existing second-hand mobile marketplaces lack intelligent pricing tools based on real-time market data, leaving sellers unsure about pricing, often leading to overpricing or undervaluing, discouraging transactions.
- **No Transaction Tracking or Incentives**: Current platforms lack mechanisms to encourage buyers and sellers to complete transactions within the platform, limiting transaction transparency and value-added services.
- **Limited Support for Buyer-Seller Communication**: Direct and easy communication between buyers and sellers is not adequately supported, leading to delays or failures in completing transactions.

4. Objectives

- **Develop a Web-based Marketplace**: Build a platform where users can buy and sell second-hand mobile phones with a machine learning-based price prediction tool to guide sellers in setting fair prices.
- **Create a Transaction Confirmation System**: Implement a system that allows buyers to mark purchases as complete, upload receipts, log transactions, and update seller profiles with a transaction count and trust badge, fostering credibility and encouraging future transactions.
- **Enhancing Communication for Seamless Transactions:** To develop a communication system within the platform that enables direct, easy, and seamless interaction between buyers and sellers via email, phone, or WhatsApp through the system, reducing delays

and improving transaction completion rates.

5. Key Features

- **Seller Dashboard**:
  Allows users to register and list their used mobile phones by entering details such as:
  - ➔ Manufacturer
  - ➔ Model
  - ➔ RAM and Storage (ROM)
  - ➔ Camera (front/rear) resolution
  - ➔ Screen type (LCD, AMOLED, etc.)
  - ➔ Battery capacity
  - ➔ Age of the device
  - ➔ Condition (Excellent, Good, Fair)

  Sellers can also **track the status** of their listed items, including:

  - ➔ Number of views and inquiries
  - ➔ Communication history with potential buyers
  - ➔ Status updates (e.g., “Listed,” “In Negotiation,” “Sold”)
  - ➔ Performance analytics (e.g., average time to sale)

- **Price Prediction Engine**:
  A machine learning model trained on data scraped from platforms like HamroBazar and SastoDeal will recommend fair selling prices for devices.

- **Buyer Interface**:
  Buyers can:

  - Browse and filter phone listings by brand, specs, price range, etc.
  - View detailed information and images of each phone.
  - Connect directly with sellers via phone or email for transactions.

- **Transaction Confirmation System**:
  Buyers can mark purchases as complete, upload receipts, and log transactions. This system updates the seller’s profile with a transaction count and trust badge, helping to build credibility and encouraging future transactions.

- **Admin Panel**:
  The **Admin Dashboard** is the central hub for managing the platform's operations, offering key features such as:

- ➔ **User Management:** View and manage registered buyers and sellers, edit user details, and monitor activity.
- ➔ **Listings Management:** Approve or reject mobile phone listings and monitor active listings for pricing discrepancies.
- ➔ **Transaction Monitoring:** Track all transactions, manage disputes, and generate transaction reports.
- ➔ **Analytics and Reporting:** Access insights on platform usage, device categories, price trends, and performance metrics.
- ➔ **Communication Logs:** Monitor communication between buyers and sellers, ensuring smooth interactions.
- ➔ **Trust and Badge System:** Manage user trust scores or badges based on transaction history.
- ➔ **System Alerts and Notifications:** Receive notifications for key events and send alerts for maintenance or updates.

6. Tools and Technologies

- **Frontend**: HTML, CSS, JavaScript, Bootstrap
- **Backend**: Django
- **Database**: MySQL
  Machine Learning: Python (Scikit-learn, TensorFlow), Jupyter Notebook
- **Web Scraping**: BeautifulSoup, Scrapy for collecting training data

7. Expected Outcomes

- A fully functional, mobile-responsive marketplace web app for buying and selling second-hand mobile phones.
- A trained machine learning model integrated into the platform to provide accurate price predictions.
- Enhanced trust and engagement through direct communication, transaction tracking, and the transaction confirmation system.

8. Task Composition

- **Frontend Developer**: Responsible for designing and implementing the user interface of the marketplace.
- **Backend Developer**: Handles server-side development, API creation, and database management.
- **ML Engineer**: Develops and trains the machine learning model for price prediction and integrates it into the system.
- **UI/UX Designer**: Designs the user experience and ensures the platform is intuitive and user-friendly.

- **Data Collector & Analyst**: Collects and processes data from second-hand mobile marketplaces for training the price prediction model.