**ATM Fraud Detection System**

**Abstract:**

Automated Teller Machines (ATMs) play a vital role in modern banking by providing quick and convenient financial services. However, they are also highly vulnerable to fraud, theft, and unauthorized access. Existing security mechanisms such as CCTV cameras and physical guards are often reactive in nature, as they only record incidents but cannot prevent them in real-time. This creates a strong need for an intelligent and automated security solution.

In this project, we propose a **low-cost smart ATM fraud detection and prevention system** that combines **Deep Learning and IoT**. A Convolutional Neural Network (CNN) is used to capture and verify the face of the user through a webcam. Only authorized faces are allowed to proceed, while unknown or suspicious faces trigger a security alert. To enhance practicality, a **servo motor** is used to simulate the ATM card access mechanism, representing physical authentication. Additionally, a **GSM module** is integrated to send instant SMS alerts to the bank authorities whenever unauthorized access is detected.

The prototype is developed using Arduino, laptop webcam, and GSM module, making it affordable, practical, and efficient. By providing **real-time monitoring, automatic fraud detection, and instant alerts**, this system significantly improves ATM security and helps reduce fraud-related risks.

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