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Credit Card Reader with Face Recognition on Webcam

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ABSTRACT: In today's world the credit card fraud is the biggest issue and now there is need to combat against the credit card fraud. "Credit card fraud is the process of cleaning dirty money, thereby making the source of funds no longer identifiable." On daily basis, the financial transactions are made on huge amount in global market and hence detecting credit card fraud activity is challenging task. As earlier (Anti- credit card fraud Suite) is introduced to detect the suspicious activities but it is applicable only on individual transaction not for other bank account transaction. To Overcomes issues of we propose Machine learning method using 'Structural Similarity', to identify common attributes and behaviour with other bank account transaction. Detection of credit card fraud transaction from large volume dataset is difficult, so we propose case reduction methods to reduces the input dataset and then find pair of transaction with other bank account with common attributes and behaviour.

KEYWORDS: Machine Learning, Raspberry Pi

I. INTRODUCTION

Credit card fraud scrub as much as 5 of the world's GDP (Gross Domestic Product.) every year. Combating credit card fraud using AI is to detect the suspicious activities. Combating credit card fraud typically requires most entities that complete financial transactions to keep thorough records of their clients' accounts and activities. If they come across any information that appears to be suspicious, they are required to report it to the government for further investigation. In this Transaction records is check to detect credit card fraud activity if the suspicious data is detected. Here we use Artificial Intelligence and Machine Learning Algorithm to detect the suspicious activities and solve it by training the data of that activity. We are going to use supervised and unsupervised algorithm techniques. Credit card Reader has been around for years now and with time, the model has grown stronger and better with each passing day.

II. DATASET AND METHODOLOGY

In this section, we introduce the Capture Image dataset that we have used in our machine learning experiments. The pre-processing procedures that we have made to the data before doing the machine learning tasks will be discussed. As shown in figure 1

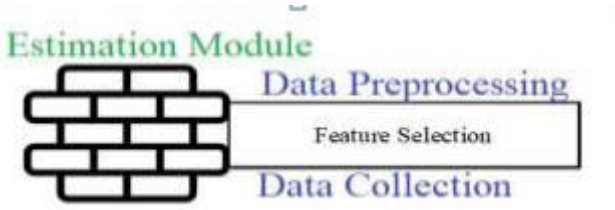

Fig.1. Estimation Module

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System Architecture

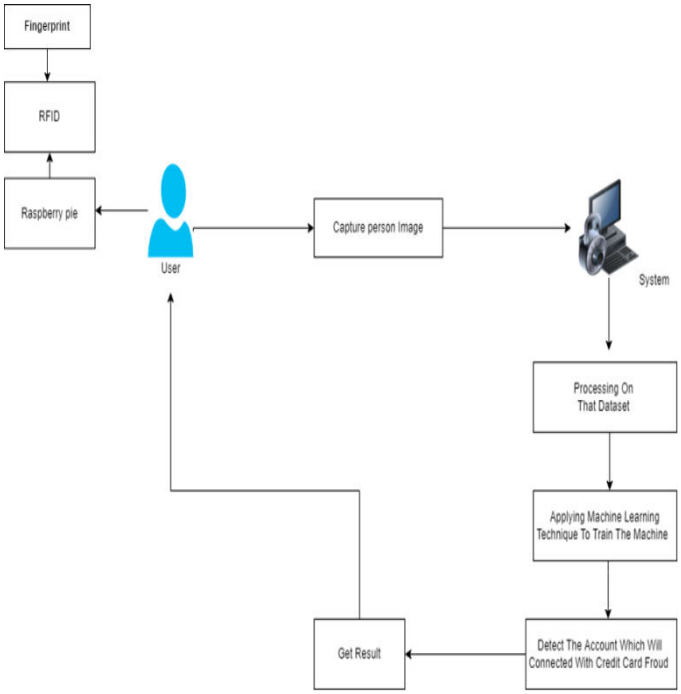

Fig.2. System Architecture

Raspberry Pi

The Raspberry pi is a single computer board with credit card size that can be used for many tasks that your computer does, like games, word processing, and spread sheets and also to play HD video. It was established by the Raspberry pi foundation from the UK. .RaspberryPi hardware specifications. The raspberry pi board comprises a program memory (RAM), processor and graphics chip, CPU, GPU, Ethernet port, GPIO pins, Xbee socket, UART, power source connector.

Fig.3. Raspberry Pi

III. METHODOLOGIES OF PROBLEM SOLVING AND EFFICIENCY ISSUES AND OUTCOME

In this project we are using Haar cascade algorithm. And using Raspberry pie .then also used Figure print and RFID. RFID is used for After the Figure print Authenticate.The system can use the HTTP protocol for communication over the Internet and for the intranet communication will be through TCP/IP protocol suite.

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Motivation

We can identify and group potential credit card fraud accounts. The goal is to develop a Desktop application which can detect classify the tweets on the basis of text as well as images it contains during disastrous situations into informative and non-informative categories using Haar Cascade Algorithm.User friendlysystem. We can identify and group potential credit card fraud accounts.

Objectives

1.Opportunity to build credit. 2. Earn rewards such as cash back or miles points. 3. Protection against credit card fraud. 4. Free credit score information. No foreign transaction fees. 5. Increased purchasing power. Not linked to checking or savings account. 6. Putting a hold on a rental car or hotel room.

Problem Statement

Use of internet, website and social networking is in rise. Social media, a source of large mix type and unstructured informationDifficult for the people to get the efficient, reliable and information in less time. Problems while making the decision. This project compares and predict based on user opinion for effective buying decision and saves time.

IV. RELATED WORK

"Financial Fraud Detection with Anomaly Feature Detection " Dongxu Huang, Dejun Mu, Libin Yang, Xiaoyan Cai. In recent years, financial fraud activities such as credit card fraud, credit card fraud, increase gradually. These activities cause the loss of personal and/or enterprises' properties. Even worse, they endanger the security of nation because the profit from fraud may go to terrorism .Thus accurately detecting financial fraud and tracing fraud are necessary and urgent. However, financial fraud detection is not an easy task due to the complex trading networks and transactions involved. Taking credit card fraud as an example, credit card fraud is defined as the process of using trades to move money/goods with the intent of obscuring the true origin of funds.

"A New Algorithm for credit card fraud Detection Based on Structural Similarity" Reza Soltani, Uyen Trang Nguyen, Yang Yang, Mohammad Faghani, Alaa Yagoub, Aijun There are many methods of credit card fraud. Criminals can hide the source of money by using the funds in casinos or real estate purchases, or by overvaluing legitimate invoices. In general, a credit card fraud procedure is composed of three major steps: placement, layering and integration . Placement is the process of introducing the dirty money into the financial system by some mean. Layering is the processing of carrying out complex transactions to hide the source of the funds. Finally, integration is to withdraw the proceeds from a destination bank account. The purpose of performing complex layering is to confuse anti-credit card fraud instruments.

"Cost Sensitive Modeling of Credit Card Fraud Using Neural Network Strategy" Fahimeh Ghobadi Due to the rapid growth in e-business and electronic payment systems, Fraud is rising in banking transactions associated with credit cards. This paper intends to develop a credit card fraud 15 detection (CCFD) model based on Artificial Neural Networks (ANN) and Meta Cost procedure to reduce risk reputation and risk of loss. ANN strategy have been used for credit card fraud prevention and detection. Because of the unbalanced nature of the data (Fraud and Non-Fraud cases), the detection of fraudulent transactions is difficult to achieve. To deal with the problem of imbalanced data, Meta Cost procedure is added. Compared to the model based on Artificial Immune System (AIS), this model showed cost saving and increased detection rate. Data of this study is taken from real transactional data provided by a big Brazilian credit card issuer.

"Credit Card Fraud Detection: A Hybrid Approach Using Fuzzy Clustering Neural Network" Tanmay Kumar Behera .Due to the rapid progress of the e-commerce and online banking, use of credit cards has increased considerably leading to a large number of fraud incidents. In this paper, we have proposed a novel approach towards credit card fraud detection in which the fraud detection is done in three phases. The first phase does the initial user authentication and verification of card details. If the check is successfully cleared, then the transaction is passed to the next phase where fuzzy means clustering algorithm is applied to find out the normal usage patterns of credit card users based on their past activity. Once a transaction is found to be suspicious, neural network based learning mechanism is applied to determine whether it was actually a fraudulent activity or an occasional deviation by a genuine user. Extensive experimentation with stochastic models shows that the combined use of clustering technique along with learning helps in detecting fraudulent activities effectively while minimizing the generation of false alarms.

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"Credit Card Fraud Detection: A Realistic Modeling and a Novel Learning Strategy" Andrea Dal Pozzolo, Giacomo Boracchi Detecting frauds in credit card transactions is perhaps one of the best test beds for computational intelligence algorithms. In fact, this problem involves a number of relevant challenges, namely: concept drift (customers' habits evolve and fraudsters change their strategies over time), class imbalance (genuine transactions far outnumber frauds), and verification latency (only a small set of transactions are timely checked by investigators). However, the vast majority of learning algorithms that have been proposed for fraud detection rely on assumptions that hardly hold in a real-world fraud-detection system (FDS).

"Credit card fraud detection based on whale algorithm optimiz HG BP neural network" ChunzhiWangYichao. This paper proposes a credit card fraud detection technology based on whale algorithm optimized BP neural network aiming at solving the problems of slow convergence rate, easy to fall into local optimum, network defects and poor system stability derived from BP neural network. Using whale swarm optimization algorithm to optimize the weight of BP network, we first use WOA algorithm to get an optimal initial value, and then use BP network algorithm to correct the error value, so as to obtain the optimal value.

"Credit Card Fraud Detection using Random Forest Algorithm." Gokula Krishnan., Dhinesh Raj. Technological developments have changed the way we live. Banks have introduced the concept of credit cards. Due to the advancement in the electronic commerce technology, the use of credit cards has increased and it has become a popular mode of payment for both online and offline purchases. In spite of this enormous popularity the cards are not free of risk.However, the vast majority of learning algorithms that have been proposed for fraud detection rely on assumptions that hardly hold in a real-world fraud-detection system. Our project mainly focussed on credit card fraud detection in real world. Initially we will collect the credit card datasets for trained dataset. Then we will provide the user credit card queries for testing data set. After final optimization the results indicates about the optimal accuracy for Random Forest Algorithm is 98.6 .

"Credit Card Fraud Detection Using RUS and MRN Algorithms."AnusornCharleonnan. Currently, enterprise systems have been focusing on expenditure services through credit card broadly because it is convenient and quick to pay for products and services. Thus, this research emphasizes on the fraud detection of credit card payment by using the machine learning technique called RUSMRN. The proposed method adopts three base classifiers which are MLP, NB and Naıve Bayes algorithms. In addition, it can analyse the correctness to work with the unbalance datasets. After that, it has brought the information to make prediction for correctness whether it has the risks in payment. The result shows that the proposed method can achieve the best classification performance in terms of accuracy and sensitivity.

"Dataset shift quantification for credit card fraud detection" Liyun He-Guelton Machine learning and data mining techniques have been used extensively in order to detect credit card frauds. However purchase behaviour and fraudster strategies may change over time. This phenomenon is named dataset shift [or concept drift in the domain of fraud detection . In this paper, we present a method to quantify day-by-day the dataset shift in our face-to-face credit card transactions dataset (card holder located in the shop). In practice, we classify the days against each other and measure the efficiency of the classification. The more efficient the classification, the more different the buying behaviour between two days, and vice versa.

"Real-time Credit Card Fraud Detection Using Machine Learning." AnuruddhaThennakoon. Credit card fraud events take place frequently and then result in huge financial losses. The number of online transactions has grown in large quantities and online credit card transactions holds a huge share of these transactions. Therefore, banks and financial institutions offer credit card fraud detection applications much value and demand. Fraudulent transactions can occur in various ways and can be put into different categories. Each fraud is addressed using a series of machine learning models and the best method is selected via an evaluation. This evaluation provides a comprehensive guide to selecting an optimal algorithm with respect to the type of the frauds and we illustrate the evaluation with an appropriate performance measure. Another major key area that we address in our project is real-time credit card fraud detection

V. CONCLUSION

Finally, it is concluded that The Credit card is an intrinsically secure device. Credit cards have proven to be useful for media. Eventually replacing all of the things we carry around in our wallets, including credit cards. The credit card can be an element of solution to a security problem in the modern world.

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