Identification of Black Money and Counterfeit Notes Using NFC, IOT & Android

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Abstract – Black money is generated through illegitimate means by bypassing taxation system. It is not possible to find the root cause of black money or estimate the magnitude of black money. This paper analyses a randomized evaluation of tax enforcement and tax evasion. The rupee note is attached with a NFC tag which has the rupee value, serial number and expiry date of the rupee note. A money counting device which would read the NFC tag is installed at offices/shops or the reader device can be attached to the merchants/ vendor's android mobile via OTG. In case of small vendors public can scan the QR code which contains the server account details and the amount would be automatically credited to the sellers account. It also facilitates cashless transactions. Hence RBI can track the transactions of individual users. SMS notification to remind the user about the expiry of currency is also implemented.

Index Terms – Near Field Communication (NFC), On-The-Go (OTG).

1. INTRODUCTION

HF-based RFID and NFC systems are widely used nowadays. They are used in applications like payment, transportation and health care etc. The integration of RFID into smartphone enhances the phones features and functionality. The phone is capable of tracking and identifying RFID tagged objects. The reader device emits an alternating magnetic field, which powers up the transponder and exchange data by means of modulation. One of the important factors to consider is the antenna size. It is of high interest to provide small-sized and secured RFID technology. A miniaturized system-in-package contactless and passive authentication solution that features NFC is developed in this work. Generation of black money in social, economic and political space has an ill effect on the conduct of public policy and the institutions of governance. Recipients of black money must hide it, spend it in underground economy, or give it the appearance of legitimacy through money laundering. The main drawback is that the root cause of generation of black money is not known. In this work, we investigate the classic tax evasion cases, and employ a graph-based method to characterize their property that describes two suspicious relationship trails behind an Interest Affiliated Transaction. Between the transaction parties the most important thing is that there exists a complex and covert interactive relationship.

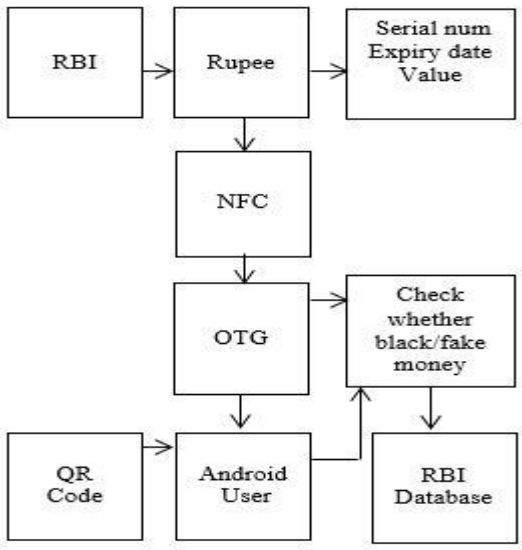
A money counting device which would read the NFC tag is used. The reader device is attached to the mobile via OTG connectivity. QR code technology is implemented. Using the above methodologies, RBI can easily track the income and expenditure made by every user. SMS notification for reminding the expiry of the currency is also implemented.

2. RELATED WORK

The Concept of Business Tax Fraud

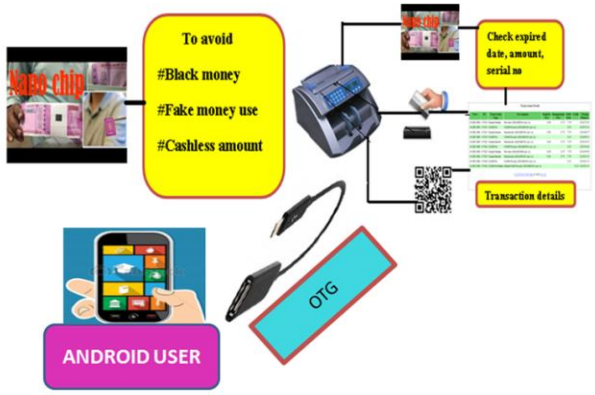
Tax evasion is illegal evasion of tax by individuals, corporations and trusts. Generally, business tax frauds include VAT irregularities, transfer pricing and cross-border structuring frauds, council tax exemptions and discount frauds, consumption frauds, sales tax and payroll tax frauds, underreporting of property rental income, intra group transactions, interest deduction, tax arbitrage and the double Irish tax structure used by large multinational corporations to lower corporate taxes. In this paper, transfer pricing, cross border structuring frauds and tax frauds in intra group transactions or transactions between interest affiliated entities is focused.

3. SYSTEM ARCHITECTURE



All the hardware setup is made according to the block diagram. NFC chip to hold the currency details, OTG to attach the Android mobile and reader device, QR Code technology for cashless transactions and RBI database to track all the transactions of individual users.

4. BLOCK DESCRIPTION



Currency enrolment

Every currency has a tag number, currency value and serial number .First the user needs to create an account. Once the user creates an account, they can login their account and request the job from the service provider. The service provider will process the user requested Job and respond to them. All the user details will be stored in the database of the service provider. A user interface frame is designed to communicate with the server through network coding using Java.

Android application

An Android application is designed and implemented for immediate or small event transactions. The reader device is attached to the android mobile via OTG connectivity to the merchants or vendors. NFC reader connected with the mobile phone reads the NFC tag embedded in the currency. The NFC administrator can easily track the transactions via mobile NFC id.

Hardware implementation

An embedded kit which reads the NFC tag is employed; it is interfaced with a microcontroller using a ZigBee network. In every shop/office a money counting device which would read the NFC tag is installed. Once the device reads the currency it directly transmits the currency details to the RBI server. This system identifies the total money transferred using the device. RBI server can also easily track the all transaction details of the user.

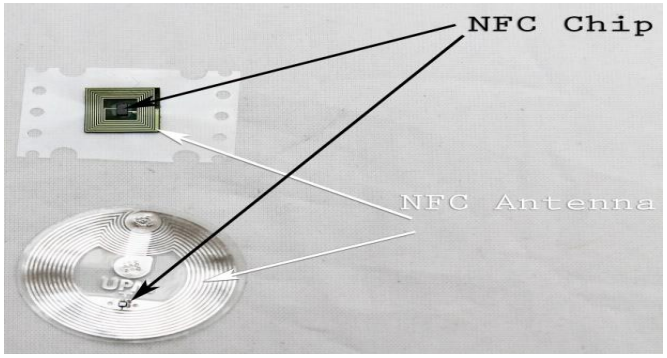
QR code process

Quick Response code is a specific two-dimensional code which can be read by dedicated QR code readers and smart phones. The QR code is a black module arranged in a sequence pattern on a white background. The information encoded can be a text, URL or any other data. In case of small vendors like street business merchant's vegetable selling people, public can scan the QR code which contains the account details of the server and automatically amount would be credited to the specific sellers account.

NFC chip

The NFC technology evolved from Radio Frequency Detection Technology. RFID technology is used in security scan cards at offices etc. Near Field Communication (NFC) is limited to communication within 4 inches approximately. It is used for

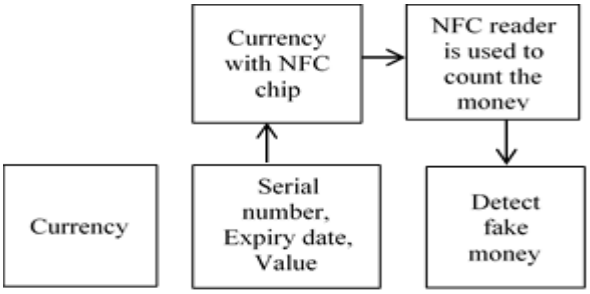
data transfer like videos, images and other forms of data in mobiles, laptops etc. The performance of NFC chip is determined by tuning of the antenna, the product the inlay is in and the device the NFC tag is interacting with.



5. MODULE DESCRIPTION

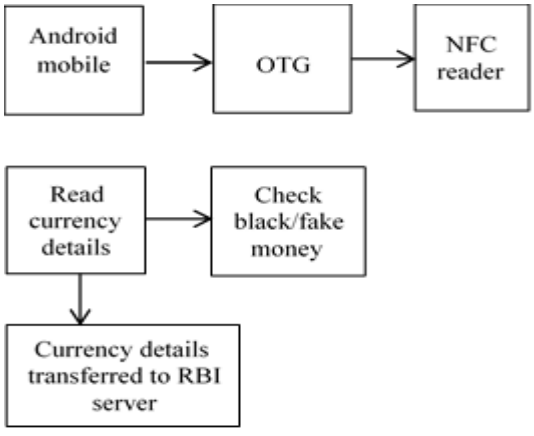
MODULE 1

The currency note is attached with NFC chip. The tag holds the currency details like currency value, expiry date and serial number currency. The NFC reader device counts the note and detects the black money and fake money.



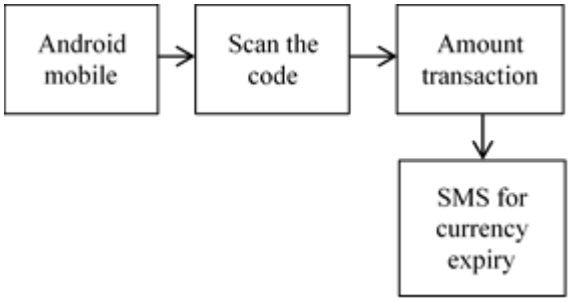
MODULE 2

The NFC reader is attached to android mobile via OTG to get the currency details from the tag attached to the currency note and sends it to the RBI server to track the user transactions which helps in finding black money.



MODULE 3

Android mobile is used to scan the code and transfer the currency and user details to the RBI server. QR code is implemented in case of street vendors. SMS alert is also facilitated regarding currency expiry.



6. FUTURE WORK

Digital/Cashless transactions bring in better transparency, scalability and accountability. RFID and NFC systems are highly used nowadays. RFID integrated into smartphone enhances the phones features and functionality

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