ATM LOCATOR

Bharath[#1], Vamsi[*2]
[#]SRM University, Chennai
[*]Electric Power Engineering University
[1]vamsi95@outlook.com, [2]bharath10795@yahoo.com

Abstract— **In this paper, we focus on an automated teller machineintegrated with ATM locator device. When particular ATM is not working it helps you to find the closest ATMs that can provide surcharge free cash withdrawals for your Money Pass network card. It also finds the direction to nearby ATMs using built in GPS (global positioning system). The GPS will give you the accurate location of your nearby ATMs. Since no ATM had this option if we implement this it will benefit the card holders and customer satisfaction level will be increased.**

Index Terms— **IoT, customer satisfaction, ATM, GPS**

I INTRODUCTION

Nowadays, the main communication form on the Internet is human-human. But it is foreseeable that in a near soon that any object will have a unique way of identification and can be addressed so that every object can be connected. The Internet will become to the Internet of Things. Although much of the work has been done until today to realize the Internet of Things (IoT) into practice, most of the work focuses on resource-constrained nodes, rather than linking the existing embedded systems to the IoT network. The modern banking has become customer-driven and technology-driven. Technology intensive delivery channels, like Automated Teller Machines (ATMs) have created a win-win situation by extending greater convenience and multiple options for customers while providing tremendous cost advantages to the banks.

II MOTIVATION

The motivation for doing this paper was primarily an interest in undertaking a challenging project in an interesting area of research. The opportunity to learn about a new area of computing not covered in lectures was appealing. Everyone face this problem in day to day life that too during emergency situations. So we started thinking of an solution for it which will give an immediate solution to the customer. This area is possibly an area that we might study at my postgraduate level.

III PROBLEM DESCRIPTION

In some circumstances, there is "ATM is out of service" notice displayed on the ATM screens due to various reasons such as

- Communication line is interrupted
- Switch server is down
- ATM is run out of paper
- Card reader is failed

If consumers are facing these problems more frequently, customer satisfaction level will be less. There is indirect relationship between customer satisfaction level and bank development.

IV PROBLEM ANALYSIS

According to survey conducted from a sample of 360 respondents equally representing each bank (State Bank of India, HDFC bank, ICICI bank) the frequency of problems faced and satisfaction level regarding problems were analyzed as follows

Frequency of problems faced

Problems	Often	Rarely	Never
Card gets blocked			
a) SBI	24	36	60
b) ICICI Bank	-	66	54
c) HDFC Bank	12	48	60
Machine out of cash			
a) SBI	42	48	30
b) ICICI Bank	60	42	18
c) HDFC Bank	42	72	6
No printing of statement			
a) SBI	30	24	66
b) ICICI Bank	36	42	42
c) HDFC Bank	60	42	18
Machine out of order			
a) SBI	36	48	36
b) ICICI Bank	42	48	30
c) HDFC Bank	48	66	6
Old notes			
a) SBI	24	30	66
b) ICICI Bank	24	36	60
c) HDFC Bank	42	54	24
Wrong amount of statement			
a) SBI	-	24	96
b) ICICI Bank	-	24	96
c) HDFC Bank	-	42	78
Poor visibility of statement			
a) SBI	6	24	90
b) ICICI Bank	30	36	54
c) HDFC Bank	6	60	54
Reduction in balance without cash payment			
a) SBI	-	18	102
b) ICICI Bank	6	30	84
c) HDFC Bank	6	48	66
If any other, please specify			

a) SBI	-	6	114
b) ICICI Bank	-	6	114
c) HDFC Bank	-	6	114

Satisfaction level regarding problems

Name of the Bank	Satisfaction Level
a) SBI	82%
b) ICICI Bank	78%
c) HDFC Bank	73%

Business Intelligence Journal - August, 2009 Vol. 2 No. 2

THE HINDU

Cities » Hyderabad

Published: June 1, 2013 16:39 IST | Updated: June 1, 2013 23:58 IST
Network problem leaves ICICI Bank customers stranded

The Hindu

A network problem affected operations of ICICI Bank on Saturday. By 3 p.m., the network glitch was corrected and the normal banking operations began. -Photo Nemmani Sreedhar

In this situation ATM locator device help customers by providing nearby ATMs information so that they can withdrawal money with no delay.

V. SOLUTION

ATM locator finds the direction to nearby ATMs using built in GPS (global positioning system). The GPS will give you the accurate longitude and latitude of your nearby ATMs. Since no ATM had this option if we implement this it will benefit the card holders and customer satisfaction level will be increased. There is indirect relationship between customer satisfaction level and bank development.

VI. IMPLEMENTATION

The average no of transactions (Actual) per month is 31328329 – Reserve Bank of India ATM & Card statistics. To satisfy customers fully, all ATMs should function well but it is practically not possible. The alternative solution to this issue is to provide them nearby ATM details. If possible the other bank ATM details can also be provided. We are not sure that all customers are equipped with navigating device so it should be installed in ATM center itself. Failure of this device is rare because no other extra options or facilities will be provided. It is easy to find ATM in cities but it is difficult to find ATM in rural areas. For illiterate people the device can get the input through voice search and for easy understanding voice guidance is implemented.

VII. HOW DOES ATM LOCATOR WORKS?

The current GPS consist of three major segments

- Space Segment
- Control Segment
- User segment

GPS satellites broadcast signals from space, and each GPS receiver uses these signals to calculate its three dimensional location (latitude, longitude and altitude).

Each satellite continually transmits messages thatinclude the time the message was transmitted and, Satellite position at time of message transmission.

The search service of GPS will be restricted in locating ATM's only.

VIII. PRODUCT/SERVICE PROVIDED

Device to find nearby ATM with inbuilt GPS is used (map based interface). This helps customers to find nearest ATMs in their circle with directions. Device functions upon English and all state languages with voice guidance too.

ATM Locator device may have capabilities such as:

- maps, including streets maps, displayed in human readable format via text or in a graphical format,
- turn-by-turn navigation directions to a human in charge of a vehicle or vessel via text or speech,
- Traffic congestion maps (depicting either historical or real time data) and suggested alternative directions.

GPS may be able to answer:

- the roads or paths available,
- traffic congestion and alternative routes,
- roads or paths that might be taken to get to the destination,

- if some roads are busy (now or historically) the best route to take,
- the shortest route between the two locations,
- Different options to drive on highway or back roads.

IX. TECHNICAL ANALYSIS

The required technology for this product is common in today advanced world. This does not interrupt the transaction and server processing. So this device can be installed easily with available database information in server. There is no need for separate internet connection since the ATM is already connected to WLAN.

X. FINANCIAL ANALYSIS

The projects will broadly be divided in two parts:

- Revenue Generation Project

This indirectly supports the bank development. People will get ATM cards and they carry it wherever they want without fear. Even though the ATM is out of service they will be provided with an alternate option by the device ATM Locator. The number of account holders in rural area rapidly increases if these facilities are provided.

- Cost Saving Project

A navigating device with wide display and capacitive touch is required. Since we are installing it in ATM we no need to worry about security issues. No separate internet connection is required. It can be implemented in ATM itself but the device is not accessible when ATM is affected by any communication or power supply problems.

XI. PRIVACY CONCERN

Due to the popularity of GPS devices, privacy of the user becomes a subject of debate. This is because GPS devices can give geo-location information of the user. This is considered as private information and nobody should violate private information without legal approval. However, there were several incidents where the privacy of GPS devices was questioned.

X. PREVENTIONS

- Disable any wireless networking features not currently in use.
- Disable auto-join of newly discovered wireless networks.
- Comply with the data security restrictions applicable to the data you are accessing from or storing on your device.
- Configure the device and the applications on it to automatically apply updates.
- Install anti-virus software on the device, if applicable

XI. CONCLUSION

The main objective of this concept is CUSTOMER SERVICE. The implementation of this concept will give an immediate solution for the customer. It reduces the bank employees burden in going to the spot immediately to troubleshoot it. Finally through this both customer and bank will be benefited.

XII. FUTURE WORK

If we had more time to implement this project we would investigate the frequency of problems faced by customers in different localities. We would look at implementing more algorithms in ATM locator such as alternative transaction, authentication, etc…

XIII. REFERENCES

[1]   D. Culler, "10 Emerging Technologies That Will Change the World," Technology Review, pp.33-49, Feb, 2003.
[2]   N. Yamanaka, Îš. Shiomoto and H. Hasegawa ALPEN: an ATM multi-protocol emulation network based on periodical performance check between edge nodes", ICC\'96, 1996
[3]   [online]Available:http://maps.icicibank.com/mobil
[4]   N. Gershenfeld, R. Krikorian and D. Cohen,' The Internet of Things", Scientific American, Oct. 2004.