

E-payment System Using SMS Gateway And Line API

Background

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The technology is utilized to create a larger marketing network that can reach a diverse spectrum of customer types, regardless of age or location. However, e-commerce firms' marketing and payment technology offerings are limited to metropolitan areas with greater internet connection. Not if you live in a remote area with limited internet access. As a result, an electronic payment system that addresses both the urban and rural communities is necessary.

Research Goal

The purpose of this research is to develop a payment system that can reach the entire area of Ghana and most of Ghana where most millenials use the line. SMS Is used in areas not covered by the internet by combining two technologies namely Line API and SMS Gateway.

- Line API is earmarked for marketing and payment of urban areas and SMS Gateway destined for rural communities.
- The end result of this research is the creation of an electronic payment system or e-payment using SMS Gateway and Line API. Where this system can be used by the public to conduct any transaction whether it is payments, purchase of goods, top up balances, and balance transfers.

Research Questions

- How efficient and convenient is the current electronic payment to you?
 - Are you able to make transactions anywhere you go?
- Which platform do you prefer the most to do electronic transactions?
 - Web browser?
 - on pc?
 - on mobile?
- Do users really need another electronic payment system?
 - How do users feel about the existing e-payment system?

Method

- 10-minute online semi-structured interview to gather in-depth qualitative data
- I used surveys to collect data from friends on social media such as WhatsApp and Telegram
- I will use the interview script as a guide and ask follow-up questions based on answers from the users

Recruiting

- Test survey questions with 8 volunteers recruited from trusted friends who have been with this service for a very long time.
- Adults with a full-time job who:
 - Use digital language-learning products at least once a week.
 - Have been using digital language-learning products for at least 3 months.
- To recruit participants, we will send emails to full-time employees at Company X's foreign languages study group

Interview/Survey Questions

Screening Questions.

1. Are you male or female?
 - a. Female
 - b. Male
 - c. Prefer not to say
2. What is your age?
 - a. under 18
 - b. 18-29
 - c. 30-44
 - d. 45-59
 - e. 60+
3. Area you mostly live?
 - a. Urban
 - b. Rural
4. Do you use Internet Banking?
 - a. Yes

- b. No
 - c. Maybe
5. If you have never used internet banking, what are the main reasons? (Check all that apply)
- a. Don't have internet connectivity at all
 - b. I have internet access but too poor internet connectivity
 - c. Never heard of Internet banking
 - d. Concerned about security (don't trust online banking)
 - e. Don't get on with the technology
 - f. Don't see any real value in having this type of account
 - g. Too new. I would like to see how it works, then I may open an account
 - h. Not available through my bank
6. For your on-line banking, which of the following categories best explains your usual situation?
- a. You use a web browser together with an authentication device (such as a 'secure ID token/calculator')
 - b. token/calculator')
 - c. You use banking software/app on your PC or mobile phone
 - d. You use a web browser (with a banking login, username and password etc.)
 - e. You don't use on-line banking.
7. Which of these security threats have you been a victim of? (i.e. you have lost money or could have done) - Tick all that apply
- a. Phishing scam - Fraudulent e-mail pretending to be from a bank (or other legitimate business) and asking for you to log in or give your bank account details or security questions
 - b. business) and asking for you to log in or give your bank account details or security questions
 - c. Bank Account/Credit-card fraud - Your credit card number has been stolen or money has been transferred or used without your permission
 - d. been transferred or used without your permission
 - e. Ransomware - malware which typically locks you out of your computer until you give financial payment (or credit card details) to regain control of your computer
 - f. financial payment (or credit card details) to regain control of your computer
 - g. Fake website - Fraudulent website that may look like the legitimate bank, asking to click the link and provide information
 - h. the link and provide information
 - i. Financial con/scam (usually by email) - e.g. winning a lottery or being told you have inherited money and asked to provide financial information
 - j. inherited money and asked to provide financial information
 - k. I have never been a victim of electronic/digital fraud.

8. Do you have security protection installed on your computer and what type of security protection do you have? (Tick all that apply)
- Anti-virus software
 - Firewall application
 - Adware/popup window blocking tool.
 - Yes, I have installed security protection, but I am not sure what type of security protection I have in my computer.
 - None - I do not use computer security software

Timeline

- **Design proposal:** July 30- August 1, 2021.
- **Recruiting:** August 3–5, 2021.
- **Sessions:** August 6–9, 2021.
- **Readout:** August 10, 2021.

Script

Introduction

My name is Peacemaker Nana Kwesi Otoo. Thank you very much for participating in this study. I am currently working on a project related to electronic payment systems. I would love to learn more about your experience with an electronic payment system. This interview will take about 30 minutes. If you want to leave the session or take a break at any point, please let me know. Do you have any questions before we start?

Do you mind if I record this session for note-taking purposes? The recording won't be shared with anyone outside of our team.

Warm-up Questions

1. Could you tell us more about yourself?
2. Which electronic payment are you currently using?
3. Which apps or websites are you currently using for electronic payment? Have you tried other apps before?

Probe into needs and behaviors

4. How did you get started using an electronic payment system?

Follow-up questions:

- When did this happen?
 - What was the trigger?
 - How was the transaction experience?
 - What was the transaction outcome? Did you reach your transaction goal?
5. How long have you been using an electronic payment system?
- Where did you take your very first e-payment transaction?
 - (If not digital) Why did you decide to switch to using digital products?
6. How often do you transact? What motivates you to continue to do an electronic transaction on a daily/weekly/etc basis? What are your major achievements?
- What makes users feel proud and excited?
 - How do you track your progress?
7. How do you decide what to transact? Why?
- Do you set up transaction goals?
8. What do you use to transact now?
- Have you used other platforms/tools?
 - What was the very first platform you were using?
Why did you switch to another platform? (If a participant is using more than 1 product concurrently) What do you use each product for? [Needs]
9. You mentioned you are currently using Credit card, what time of day and where do you usually use Credit cards? [Does the participant have a daily routine? Is it spontaneous?]

Follow-up questions:

- Ask participants about the context [when and where]: Ask participants why they choose to use the app in certain locations or during certain times
10. When was the last time you used a credit card? Could you walk me through how you were using this card?

Observation & follow-up questions:

- Observe what features the participant is using and how the participant uses them.
- Ask what participants like or dislike about each feature, why they like/dislike each feature.
- Which features do participants not use and why?
- What's on participants' wishlist for the app?

- If participants talk about frustrations, ask why and their current workarounds [Unmet needs]

Wrap-up

Thank you so much for sharing your experience and insights. Your answers will help my team build a better application. If you have any additional thoughts and comments, I would love to hear about them at any time. I can be reached at nanakwesiotoo@gmail.com. Hope you have a wonderful day.