DEVELOPMENT OF A FRAMEWORK FOR AIR REMARK APPLICATION: A CASE OF NIGERIAN AVIATION INDUSTRY

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ABSTRACT

It is no longer news that the biggest transportation industry in the world is the airline industry and to gain customers' loyalty, airline owners focus on service strategy to ensure customers' satisfaction. Unfortunately, customers do sometimes experience service failure from delayed flights, canceled flights, loss of baggage, flight crew/staff ill-behaviour, check-in process, airline meals amongst others. However, for airline owners to improve on their services and gain a competitive advantage in the business, there is a need to evaluate the quality of their services being rendered. This evaluation can easily be achieved if there is a means of getting customers' remarks to services given. Unfortunately, this has not been effective as the present means of service remarks have been manual which can be stressful for some customers and leave them grumbling within, which can in turn affect the productivity of the industry. To proffer a solution to the foregoing issues, a robust Android/Web-Based Application (AirRemark) has been developed using Agile Methodology for Mobile Application Development. The developed application which runs on both Android Phones/Web-Based systems offers the user (Airlines customer) the opportunity to register their remarks (complaints/compliments) based on the quality of airline services rendered to them. As soon as customers registers their remark, the airline service administrator gets the remark instantly and can help make immediate judgments required to ensure customers' satisfaction. This research work is in progress and the first stage of the work has been implemented which involves successful sending of remarks by customers to the administrator of the airline industry. Full implementation of the AIREMARK Application is recommended in the next phase of the work.

Keywords: Service Delivery, Customer Satisfaction, Complaint, Compliment, AirRemark, Airline Industry.

INTRODUCTION

The biggest international transportation industry is the aviation industry because of its speed and comfort when compared to other means of transportation. The sector has numerous social and economic benefits ranging from generating employment opportunities to enabling global linkages from facilitating global businesses which consequently boost the economic growth of both developed and developing countries. In Nigeria, the industry though growing slowly but steady remains the most desired option for international businesses or simply for leisure. There has been a rapid increase in the number of users of this means of transportation which directly causes an increase in the number of the airline industry in the country. As an effect, airline owners must strategize to remain relevant in this competitive market. Hence, service providers must improve on service delivery to retain customers' loyalty to the industry (Akpoyomare et al., 2016). There are various types of services required for the aviation industry which can be divided into four main categories namely: customer service, baggage or cargo services, engineering services, and catering services (Gilbert & Wong, 2003). With these different categories comes a varying expectation of services by the customers. However,

one thing can be agreed upon by all customers: quality service is required. No doubt, for an airline to be profitable in a competitive business world, high-quality service satisfied by customers is imperative (Jiang, 2013). Aside from global experiences, some of the challenges of the air travels experienced in Nigeria include delayed flights, canceled flights, loss of baggage, flight crew/staff ill-behaviour, unpredictable cost amongst others which directly affect customers' satisfaction. As such, this can affect the profitability of airlines who fails to satisfy customers' needs. The Federal Airports Authority of Nigeria (FAAN) is a body established to regulate the affairs of the aviation industry and optimize service operations to facilitate the economic operation of Nigerian airline transportation. This can effectively and efficiently be achieved if there is an effective means of communication between the customers receiving services and management. Customers that seek after quality are not influenced by cost in terms of monetary value, rather, their focus is on the quality of services rendered. These categories of customers will go after any airline industry that best meets their expectations in terms of quality (Khudhair et al., 2019). However, it becomes important for the management of the airline industry to balance between costs and service quality to gain a competitive advantage in the market (Avram, 2017). For airline owners to achieve a higher quality level and meet customer expectations, it has become a necessity for airline owners to develop a specific mechanism for measuring passengers' satisfaction (Tsafarakis et al., 2018). Customer satisfaction is what guarantees the survival of airlines and it is achievable only by matching the passengers' needs with the services. Assessment of service quality and its subsequent management is of utmost importance for them to be competitive and successful in this industry (Mahphoth et al., 2018). If customers can promptly send a remark to the management in form of a compliment or complain about services received, it will help the management evaluate their services, make better decisions, solve customers' problems and consequently, gain the loyalty of their customers. Arising from the foregoing, the authors intend to develop an Android-based/web-based system that is aimed at collating the views and opinions of airline travelers in the form of Compliment(s)/Complaint(s) on the quality of service provided to them by airline industries/carriers. This will be achieved by adopting an Agile Methodology for Mobile Application Development. This approach enables requirements and solutions to evolve through the combined effort of the project development team and the customer. It promotes adaptive planning, evolutionary development, early delivery, and continuous improvements. This iterative and flexible approach can be used in complex projects where customer requirements can change frequently.

1. Review of Related Literature

Ahmed et al. (2020) used descriptive analysis and SEM-based approaches to examine factors that can boost customers' satisfaction and loyalty to a Pakistan airline industry. They concluded that a perfect complaint resolution and response time amongst other factors enhance customers' satisfaction and loyalty. However, these cannot be achieved efficiently if there is no system in place to aid smooth communication between the customers and the airline management where complaints can be sent directly to the management and the trend of response can be monitored by customers. Elebiri and Osuagwu (2019) designed an e-management system for the Nigeria aviation industry. The main objective of their system is to assist flight customers to have access to flight information. Interestingly, one of the functionalities of the system is the lodge complaints of any dissatisfaction online. The major setback in this system however is that each complaint is open to all other customers or intended customers who have access to the site. In a case where customers only get to see complaints and no form of compliments about the industry, it can discourage intended customers and in turn affect the business negatively. In the work of Atalık et al. (2019), the authors proposed a logit model to measure customers' perception of the various airline service quality and how it determines their level of satisfaction. They investigated services like seat comfort, food, and beverages, entertainment, and airline staff services. It has been concluded that seat comfort has the highest impact on

business customers' perception of service quality and satisfaction as regards value for money and they recommended that airline owners should improve on in-flight services. However, it is worthy to note the perception of all class of customers on service quality can affect the growth of the airline industry. The paper did not however address the individual expectation of customers as regards services required aside from these four services considered in this work and how to effectively communicate these expectations to the management. Tsafarakis et al. (2018) used the Multi-criteria Satisfaction Analysis method (MUSA) to measure the level of satisfaction airline customers got from a variety of services rendered to them. This is aimed at detecting the categories of services the management needs to improve to increase customers' satisfaction and loyalty to the industry. While the aim of the study has been achieved in form of a weighted value measuring customers' satisfaction level of each airline service, it has been only applicable to Aegean Airlines. Also, it did not present a mechanism for customers to send their complaints as regards the services and how the airline management team attended to the complaints. Suryotrisongko et al. (2017) worked on a Mobile Application for Grievance Registration. The proposed system assists citizens to lodge compliant and seek redress using their mobile phone. The developed system has been designed to run on Android operating system. The system has been a web-based complaint filing system. The proposed application allows the user key in his/her complaints against different departments. However, the aforementioned research has been a mere proposal as it has not been implemented to achieve its set objective. In the research findings of Metwally (2013), it has been noted that poor communication from the organization to customers, and vice-versa, can negatively affect customers' satisfaction and loyalty. A common way of addressing a complaint by a customer is through personal relationships. The author went ahead to recommend a complaint handing process where the first step is the method of receiving complaints suggesting email, telephone, or face-to-face. The author however did not recognize the importance of a web-based mobile application for ease of communication and tracking.

Based on the reviewed literature, the authors acknowledged that no research work done in this field has applied the concept of online web-based/mobile-based technology to enhance efficient communication between individual airline passengers and management about service quality satisfaction where complaints or compliments can be sent and cause of action can be monitored.

2. Methodology

The authors adopted the agile methodology commonly used in mobile apps development to develop the AirRemark application. The agile methodology for mobile application development usually provides an alternative approach to the traditional method of project management such as the water fall model commonly used (Queppelin, 2016). The AirRemark application involved breaking down the project in to smaller modules. However, integrating documentation and testing has been carried out at each stage of the development. The author's choice of adopting the agile methodology has been because it promotes adaptive planning, evolutionary development, early delivery, and continuous improvements. Secondly, this development approach is fast, and it reduce risks that may occur during the launch. Figure 1 shows the algorithm for the AirRemark application.

2.1 Application Flowchart Diagram

Figure 2 represent the flowchart diagram of the developed AirRemark application.

The use case diagram as shown in Figure 3 is used to illustrate how the users interact with the developed system. In Figure 3, the flight passenger can make remarks such as registering of complaint/compliment based on the quality of services provided by airline carriers.

2.2 AirRemark Architecture

AirRemark Android-based was designed and implemented using standard acceptable software engineering tools. The authors used Microsoft Visio tool. The authors applied several requirements analyses to produce a very robust, extensive, and scalable system. Also, the authors

Begin:

Input: *Initialize register and enter username and password*
Select Airline Route and make remark category (compliment/complaints)
Output: Output Air Remark Category (Compliment/Complaint).

Step 1. Enter Air Remark details
Step 2. **Do**
{
Step 3. Select route
Step 4. **If** route is not properly selected
{
Step 5. Select exact route
Step 6. Update Remark (Compliment/Complaints) information
Step 7. **If** new Remark
Step 8. **Add** new Air Remark information
Step 9. **Endif**
Step 10. **EndDo**
Step 11. **While** Air Remark is made
Step 12. **Output**"Selected remark category based on selected route"
End.

Figure 1. AirRemark Algorithm

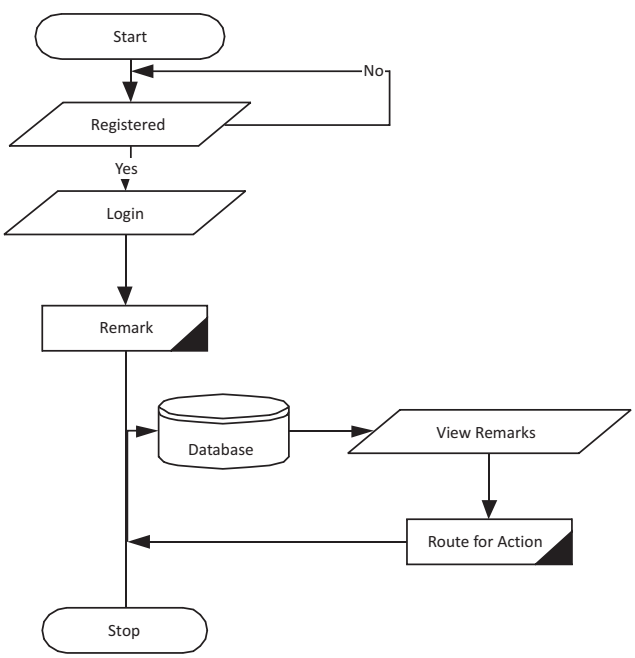

Figure 2. Flowchart Diagram of AirRemark Application

adopted the Unified Modelling Language (UML) method to model the behavioral attributes, functional components, and all needed modules of the application. The AirRemark architecture is illustrated in Figure 4.

3. AirRemark Application Menus Implementation

3.1 User Registration Page

The view that will be displayed during the first login is the registration page as shown in Figure 5. The page will provide fields that enable the user to input his/her necessary information required to gain access to the main functionalities of the AirRemark application.

3.2 The Select Action Page

The select action page view as displayed in Figure 6 gives the user options to select what they want to do. This can be to lodge a complaint or to compliment the services of an Airline service provider. In this page the user(s) can also see the history of their activities.

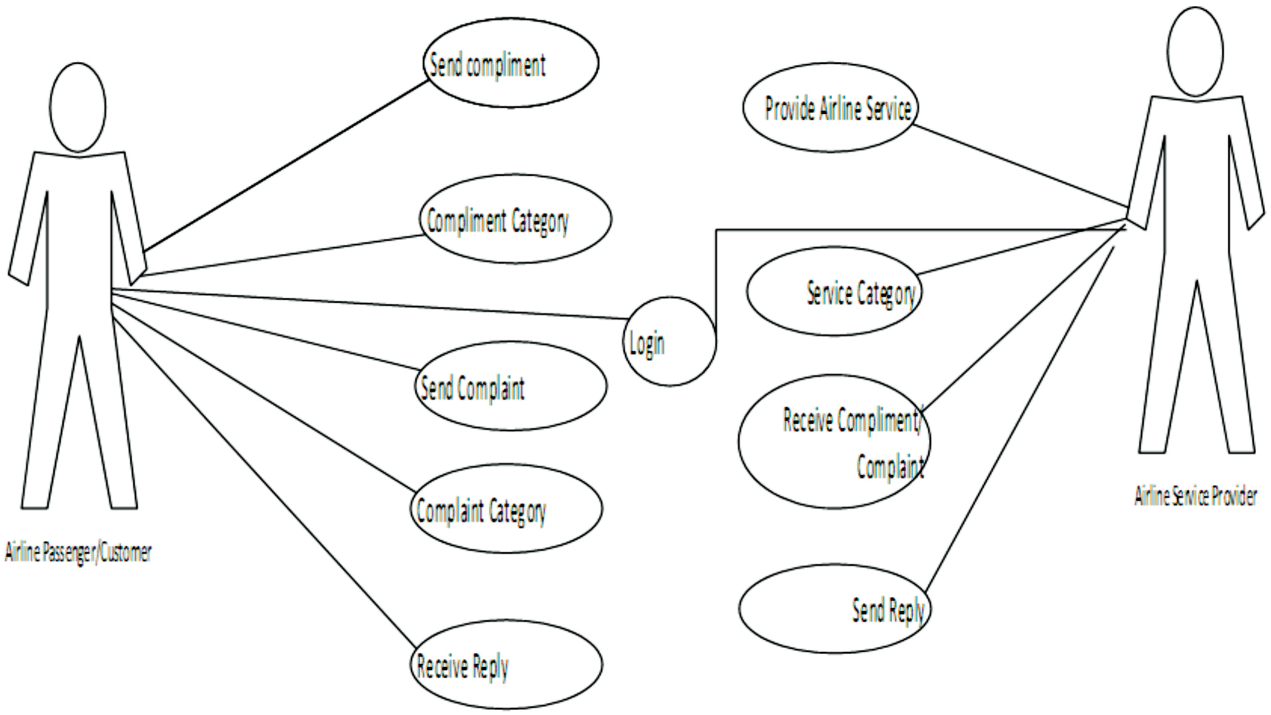

Figure 3. Use Case Diagram of AirRemark Application

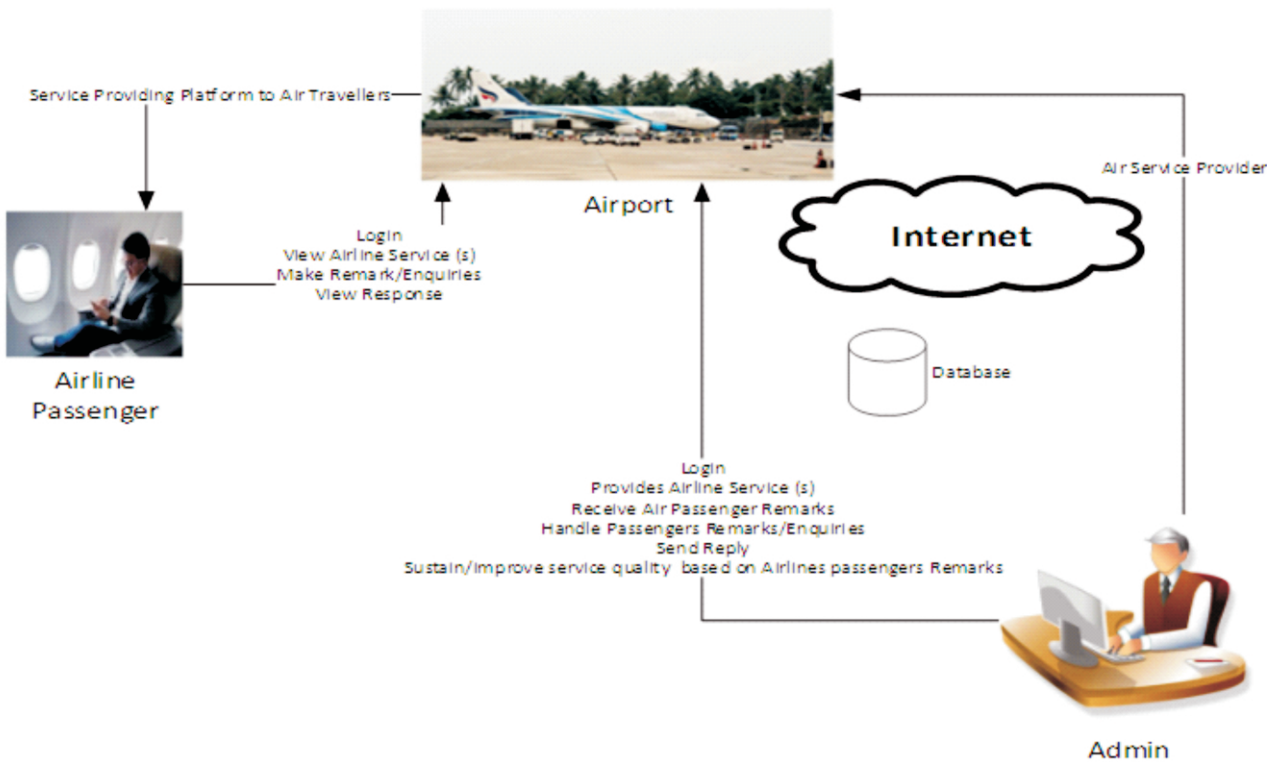

Figure 4 AirRemark Architecture

Figure 5. User Registration View

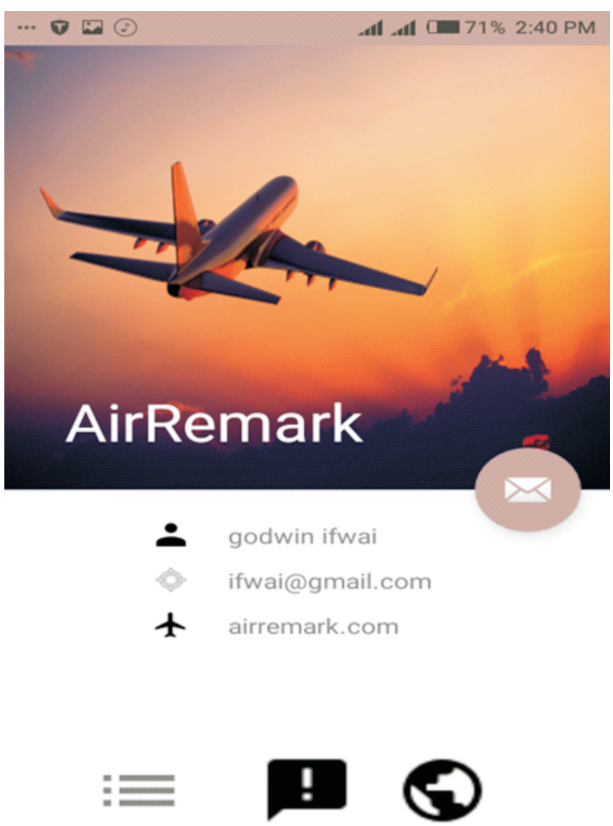

Figure 6. Select Action Page View

3.3 Complain/Compliment Home Page

Figure 7 is the complain/compliment page. In this view, the user decide what remarks they want to make based on their experiences. The user also has the option to make complaints or compliment. The different emojis indicates what action to be taken by the user by their expression in their faces. The smiling emoji means the user is happy and is willing to make positive remarks. The sad emoji indicates the user wants to make a negative remark.

3.4 Complaint View

The user can submit their complaint in this page as shown in Figure 8.

3.5 Compliment View

At this view, the user has the option to submit his/her compliment about the airline. The compliment view is illustrated in Figure 9.

3.6 History View

As it can be seen in Figure 10, the history view lets the user browse through the history of their previous remark(s). This can be either their past complaint or compliments ever made.

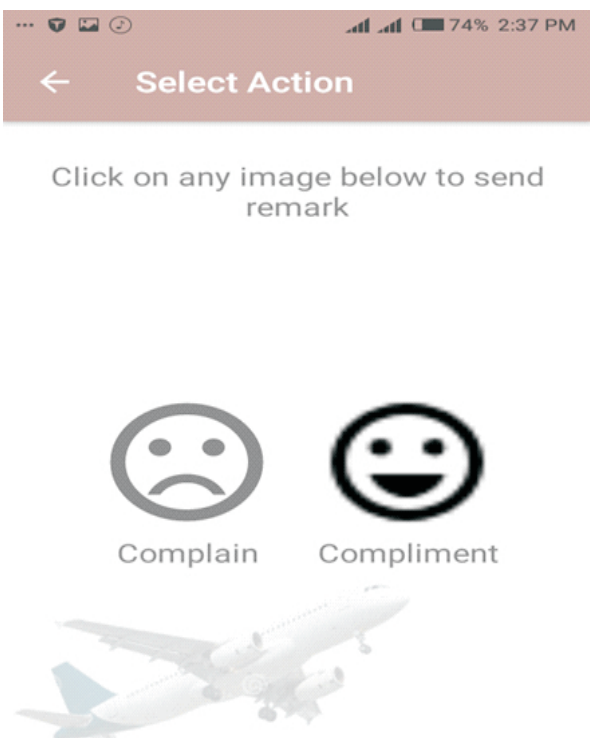

Figure 7. Complain/Compliment Page

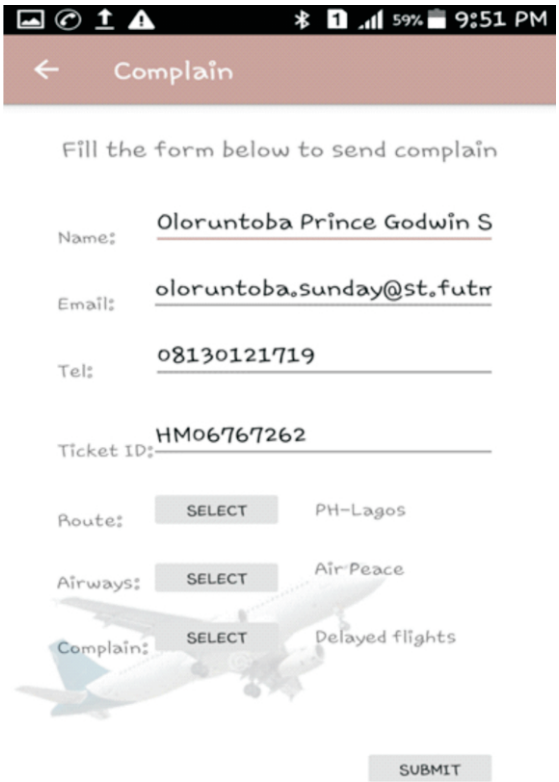

Figure 8. Complaint View

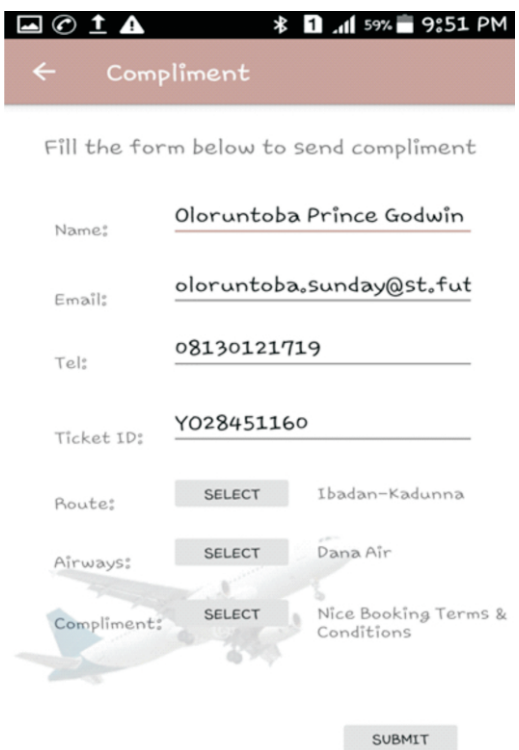

Figure 9. Compliment View

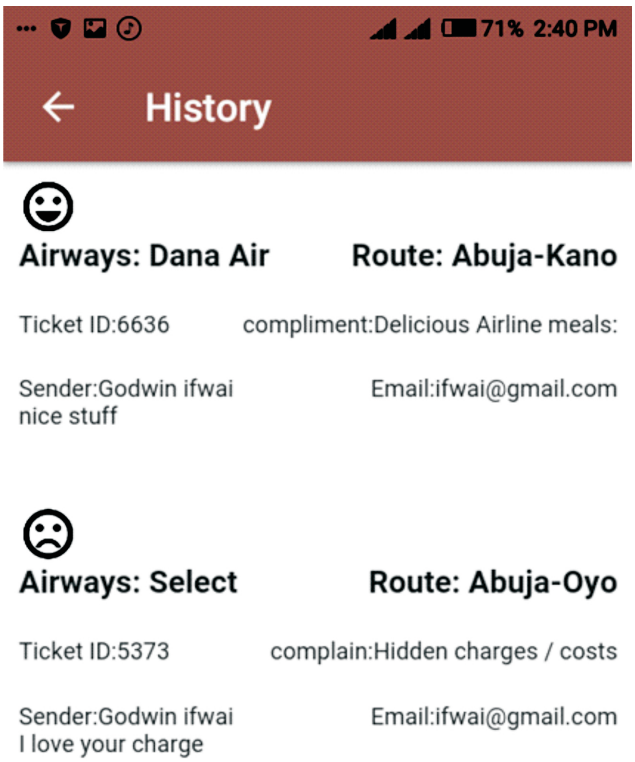

Figure 10. History View

Conclusion

AirRemark application for airline services and delivery has been successfully implemented on android/web-based systems that enable airline passengers to make remarks such as complaints/compliments based on the quality of services provided by airline carriers. The developed application has been able to collect views of airline passengers that are both satisfied and dissatisfied with services provided to them by various airline industries for improved service quality. The application is efficient and effective than the manual method. The developed application is hereby recommended for adoption by the aviation industry to determine their customers' perceptions on the services they (airlines) provide. The first phase of AirRemark application can send airline customers remarks successfully but there is no mechanism for receiving the bulk of their response by airline industry service providers. Future research work can be done in this area such that remarks can be sent by airline passengers and their response received by airline carriers' staff.

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