Survey and Study on Utilizing Mobile Application for Field Service and Complaint Management for Small Scale Businesses

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Abstract

Mobile technologies offer the ability to incorporate field support engineers effortlessly into business systems [1], resulting in innovative ways of engineer-to-customer engagement. We explain the findings of our survey in this paper on the criteria of using a mobile application in field service [4][14] and complaint management. After a summary of the problems facing these types of apps and an overview of the design of the service management system used, we present the findings of our usability report.

Keywords: - *Mobile application, Field service, B2B Business, CIC*

INTRODUCTION

The challenges faced by small-scale businesses in field service and complaint management are evolving market environments, technology. In particular, when new technology is not used at ground level:

- Cost-pressure on service units would be exacerbated by competition. Therefore, company operation operations must be carried out more efficiently and effectively.

- Due to various technological advancements such as miniaturization, wireless technology, and growing embedded software, industrial goods and solutions have become more complicated and costly. Which will scale up the industries focused on services

- After-sales support relationships will increase, i.e., certain service activities will be handled by external company employees. Since they would not necessarily be familiar with the products installed, oriented data will have to be given on an ad-hoc basis to perform service-specific tasks.

Currently, most small businesses find it quite challenging to manage their field personnel work schedules adequately. As a result, it affects the customers' services, which may sometimes get delayed due to miscommunication regarding services and products delivery on time. However, it is significant for all small businesses to take care of field personnel and their duties to perfectly regulate the continuing workflow of company and

clients' services. To improve the performance of field staff, there is a need to do the proper management of their works and try to schedule them online too. But there is a need for some specific software, which can systematically regulate field workers' duties.

UTILIZING MOBILE APPLICATIONS IN FIELD SERVICE

We obtained significant specifications for a mobile application used to enhance industrial service processes in the initial phase of our project. We will concentrate on the basic requirements examined in our study below and exclude the quality characteristics that many industrial applications need to cover, such as reliability and protection. Here, issues such as the ability to operate online and offline, the input of vast volumes of data [6], and the representation of information obtained from different information systems from prior service report information were of significant interest. For these reasons, we decided to concentrate on a mobile application and software that can be performed in our study on any smartphone, tablet PCs or even standard laptops since these types of devices completely support the necessary input and output capabilities.

In a second phase, we analyzed existing applications for commercial field services in terms of their suitability to meet our general requirements. We agreed to take a closer look at a few of them based on this assessment.

CHALLENGING NEEDS OF USERS

Small scale businesses around us like the electronics services, etc.(AC Service, Refrigerator Repair, Network Service). Small scale B2B businesses (that have AMC) like Server Inverters, UPS, Networking Consultants, etc., need frequent visits. They currently maintain books or, in the best-case, Spreadsheets, which is not the most convenient way for customers and businesses. Sometimes the engineer/ Service person may miss/forget the task (one or two locations to visit). And most importantly, they use a lot of time scheduling recurring calls daily that can be automated easily—less transparency for business owners and customers.
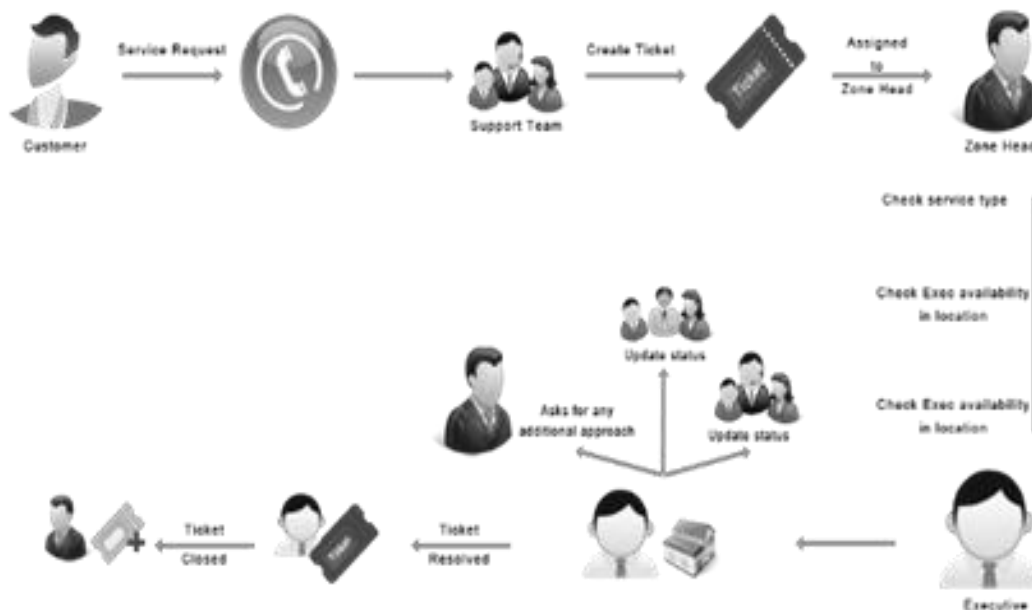

Figure 1: Field service flow

Currently, many humans are needed to complete a service call that increases the cost of operation, which leads to high prices of service charges.
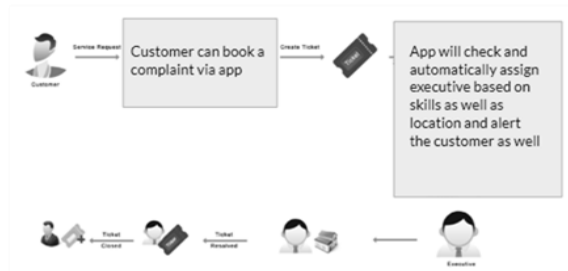

Figure 2: Flow of Service call

Instead, our projected solution:

Here we have reduced the number of employees needed to complete a service call that can reduce operation charges and faster and fluent task operation.

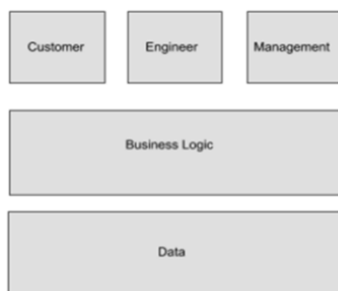**PROPOSED METHODOLOGY**

1. Architecture

Figure 3: Architecture of proposed method

The use of a mobile application offers an opportunity to fulfil the requirements of a service process and to enhance the incorporation of field

2. Customer Application

service engineers into the chain of service processes.

The Mobile Service system device architecture is based on a 3-tier architecture consisting of a client tier, a tier of business logic, and a data tier.

There are three types of client applications on the client level:

- Client application for customers that can be accessed using smartphones, tablet computers, or any computer with a browser

- Application for engineers (on or off the field) and update the status and check the schedule [9] and route directly using their smartphones/tablets/computers [13][15].

- And an application for management service planners/dispatchers and the customer interaction centre (CIC) agents.

The business logic tier consists of the application server for the mobile server. It provides the planner's necessary functionality and enables data sharing between the mobile client applications and the data tier.

The information level comprises different data frameworks that give and store data to be sent between administration, engineer and customer.

Figure 4: User interface for Customer application

Using a customer application, users can book a complaint view of all of their peripherals/devices they own and find service businesses near them [1]. It is designed to be simple, straightforward, yet efficient so that the user feels it is easier to book a ticket [8] using a mobile application than calling.

3. Engineer Application

Engineer application provides engineers with a schedule and gives notification when a task is added for them.
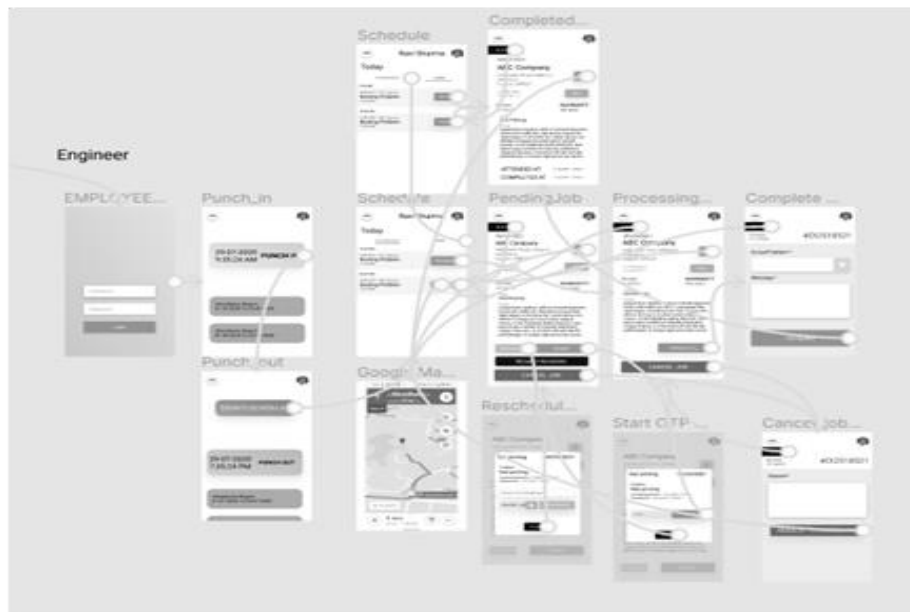

Figure 5: User interface for Engineer application

4. Management Application

Management level application helps business owners and managers to assign the disputed tickets and to generate reports.

Figure 6: User interface for Management application

5. Business Logic

When a ticket is generated, it is automatically assigned to the engineer based on the engineer's location skill and ratings [10].

CONCLUSION

According to the findings of our report, an application for small businesses can have a significant effect on the on-field service domain. One major industrial requirement, namely stability, will be able to satisfy the projected solution.

In our survey, we discovered that most users tend to use the same input schemes to perform their tasks effectively. Consequently, one of the most critical success factors is to persuade later users to achieve efficient use and use of the mobile application. The findings of this study are used to plan and analyze some new visualization strategies for an updated version of the program.

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