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TECHNICAL PROGRAM (CONT.)

DAY 2

24 NOVEMBER 2021 (WEDNESDAY)
PARALLEL SESSION F: 1400 –1515

Session	F1: Communication Engineering	F2: Application Software
Chair	Dr Herwansyah Bin Lago	Dr Tan Soo Fun
1400-1415	**1570767925** Bit Error Rate Comparison for Radio Frequency Interconnection Based on BPSK, PAM and QAM Modulation *Ngu War Hlaing, Ali Farzamnia*	**1570766700** Android-Based Booking Application for Smart Parking System *Rosalyn R Porle, Nursyafiqah Nabilah Mohd Saiful*
1415-1430	**1570764230** Secure Real-Time Data Access Using Two-Factor Authentication Scheme for the Internet of Drones *Haqi Khalid Ismail, Shaiful Hashim, Sharifah Mumtazah Syed Ahmad, Fazirulhisyam Hasim, Muhammad Akmal Chaudhary*	**1570767107** Microcontroller and Android Based Automatic Identification System for Inland Waterway *Md. Rokonuzzaman, Nazmus Shakib, Mashur Rahman Shakil, Kausarul Islam, Md Reaz Hasan Khondoker, Nowshad Amin*
1430-1445	**1570767916** MATLAB GUI for Forecasting the Ionospheric F2 Layer's Critical Frequency *Noreen N Risal, Mariyam Jamilah Homam*	**1570762727** Android Application for Tourism Planning in Bangladesh *Mahabubul Alam Pavel, Masud Rana, Abdullah Al Roman, Yamim Hassan, Riasat Khan*
1445-1500	**1570765678** Study of Radio Link Losses in Different Mediums and Receiving Stations *Md. Nihal Al Rafi, Mohammad Akib Javed Mojumder, Sheikh Shah Newaz, Riasat Khan*	**1570748908** eMarket for Local Farmers *Aina Marie Joseph, Nurfauza Jali, Amelia Jati Robert Jupit*
1500-1515		**1570759953** Internet of Things (IoT) Based Heart Failure Monitoring System Using Radio Frequency Identification (RFID) *Syahirah Asyiqin Alias, Darmawaty Mohd Ali, Yusmardiah Yusuf*

eMarket for Local Farmers

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Abstract— The Covid-19 pandemic is a global health crisis that has brought an impact on everyone. A negative impact has made local farmers struggle to find their means of income other than selling their crops to their customers. The customers have had difficulties searching for good quality fresh produce other than from the supermarket. The purpose of this paper is twofold: firstly, to assess the manual and existing system on how consumers acquire their fresh produce during the Covid-19 pandemic, to design and implement a delivery system for local farmers to vend their fresh produce through a mobile application; and secondly, to test and evaluate the usability and functionality of the online farmers' market application. The existing mobile applications have changed everyone's approach in acquiring the daily essentials that the pandemic has brought. Therefore, the idea of developing an online marketplace for local farmers resulted in the proposed application, which will be explained in this paper. Rapid Application Development (RAD) was used as the methodology for the development of the eMarket application. A survey was conducted via Google form for twenty local farmers and another twenty potential customers during the pre-development stage. It was to collect data on the users' opinions regarding the proposed application. We then conducted the usability testing through Google form to collect the users' feedback on the eMarket application. Ten local farmers from Matang's market have participated in the testing phase. Additionally, ten students from a local university participated as potential customers in the usability testing. As a result of these testings, we have developed a usable farmer's market application that has been well-received by local farmers and customers.

Keywords—Android app, Covid-19, eMarket, Mobile application, prototype

I. INTRODUCTION

During the epidemic, local farmers struggled to sell their fresh food, and consumers had similar problems locating high-quality fresh fruit. According to an article in The Straits Times, farmers had to discard their produce due to not selling them to their customers (Hassan & Leong, 2020) [3]. As a result, the number of online marketplaces is increasing, and many have been integrated into one mobile application that provides other services such as food delivery and taxi booking system. eMarket, on the other hand, is a mobile application designed primarily for local farmers to sell their goods in their community. Smartphones have evolved into an indispensable instrument that not only serves as a mode of communication but also assists the user in doing a variety of duties. Mornie et al. (2021) [5] have developed a Fishery Marketplace App where the app significantly assists fishermen in selling their catch and fisheries goods to customer and fishmongers. We served as an inspiration for his efforts in the development of a farmer-focused eMarketplace.

We gave a set of questionnaires to a group of customers to survey their preferences to obtain their fresh produce during the Movement Control Order (MCO). The data was analysed and collected in charts for recording, and from there, we gathered the functional and non-functional requirements. The methodology chosen to conduct this project is Rapid Application Development (RAD). This methodology focuses on rapid prototyping that will present prototypes of the proposed application after each iteration, allowing fast implementation of the system in the natural environment, as Daud et al. (2010) [1] stated. Before we started on the prototype, we first analyse and design the proposed application. The analysis compares how the current marketplace system is being executed and what solution is offered on the proposed application.

The implementation phase starts after the analysis and design phase. First, it focuses on the development configuration, including the tools' details and their roles for developing the application. Next, it discusses the logic for the flow of the application for it to work successfully. Hence, achieving the objective: to implement a marketplace app for local farmers to sell their fresh produce online.

The testing phase comes right after the implementation phase, in which it discusses functional and non-functional testing. Functional testing aims to ensure that the application is working as intended, whereas non-functional testing tests anything unrelated to its function, such as its performance, portability, and compatibility. Finally, to conclude the project, there is a discussion on the limitation of conducting the project and the future works to improve the application further.

II. MATERIALS AND METHODS

We have reviewed several existing systems related to the mobile market application for this project development: Farmer Direct, Farmer's Market, and Farmers e-market. Among these three, we will highlight the Farmer Direct application as this application has better features to use as a