**南京信息工程大学本科生毕业论文（设计）任务书**

Project Summary of Undergraduate Final Project

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| 学 院  College | **College of International Students** | | | | 专 业  Major | | Software Engineering | |
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| 指导教师  Supervisor | **郑玉** | | | | | | | |
| 论文题目Title | Multipurpose Progressive E-Commerce Web Application | | | | | | | |
| 论文性质  Types of Thesis | □毕业论文 (Undergraduate Thesis)  ☑毕业设计 (Undergraduate Project) | | | | | | | |
| 选题类型  Types of Research | □理论研究型(Theoretical Research) □实验研究型(Experimental Research) ☑软件设计型(Software & Web Design) □工程设计型(Project Design) □艺术设计型(Art Design) □其他(Others) | | | | | | | |
| 选题来源  Sources of Research | ☑结合教师科研(Scientific Research of Supervisor) □结合教育教学(Education and Teaching) □结合实验室建设(Laboratory Construction) □结合生产实际(Production Practice) □自拟(Self-designed) | | | | | | | |
| 工作量  Workload | □大Heavy ☑中Medium □小Light | | 难易度  Difficulty | | | ☑较难Difficult□中等Medium □简单Easy | | |
| 论文（设计）目标  Thesis Objectives | The purpose of this project is to build a multipurpose E-commerce website. Which can deal with any product. Including OTP(One Time Password) login, Online payment, Geolocation, keep track of the visitors, and image conversion technology is going to be used in this web application.  Two different user interfaces will be built for desktop and mobile versions of the user. That means this website is also going to be responsive. PWA technology is going to be used in this web application. New PWA(Progressive web application) technology is challenging for all the developer. This PWA technique is useful for building Android, Desktop, and IOS applications simultaneously. So developers need not build Android, IOS, and Desktop applications separately. My goal is to build such an application that can Scaffold two different languages and make this application user friendly. Combination of different APIs and Implementing all the techniques I mentioned above. | | | | | | | |
| 论文（设计）内容  Main Contents | **Abstract:**  E-commerce is also known as electronic commerce. It is a business model that lets firms and individuals buy and sell things over the internet, and the transfer of money and data to execute these transactions, and the selling of products via the internet. E-commerce, which can be conducted over computers, tablets, or smartphones may be thought of as a digital version of mail-order catalog shopping. N  ow most countries do business using Internet technologies in the administration, tax system, customs, banking, marketing, healthcare, education, trade, etc. Introducing e-business stimulated market expansion, facilitated teleworking at reduced costs [1]. E-business is a modern form of business organization that involves intensive application information and, in particular, Internet and communication technologies when performing key or core business activities [2].  **History of e-commerce:**  E-commerce has been developing since the 1990s and its evolution is directly linked to the advancement of information technology [3]. The electronic commerce industry is as old as the computer and software industries themselves[4]  **Project Strategy:**  This study was carried out by exploring relevant theory and developing an e-commerce web app. React and React Material Web Components were used for the user interface whereas Web App Manifest, Service Worker, App Shell, and Web Push Notification were implemented to make the app work offline, load fast even on flaky networks, install on the home screen, and send relevant push notification like a native app.  Progressive Web Apps are user experience which has the reach of the web and are reliable, fast, and engaging. It combines the best of the web and the best of the native apps. It was first introduced at the Google I/O developer conference in May 2016 in San Francisco[9].  Technological innovation always has an impact on how products and services are designed. In recent years, there has been unprecedented growth in the field of the Web. With the introduction of new and enhancement of existing technologies in the world of the web, things that were not possible before have now come into existence. The use of technologies is found in every field from education to health, research, and agriculture. Most businesses have now adopted the Internet as their business platform and the trend seems to be increasing[8]. Thus, there is a need for developing fast, reliable, engaging, and robust applications.  We will create an admin dashboard to control the whole website. And to control the client-side we will use API(Application Programming Interface). And this admin panel will be build using Laravel and React Scaffold. That is to say, the admin panel will be build using Laravel and React Scaffolding. And the API will be used by the client application. For the user web application, we are going to use a pure React Client Application. And many more features will be included. As I mentioned before our application is going to be a progressive web application. And using the PWA technology we will extract ios and android applications. So that we do not need to build ios and android applications separately. We can extract the android application from the PWA features directly. Or we can use android trusted web activity, PWA android wrapper, android web view, and so on. Later I will decide which strategy to choose.  And for the ios application, I am going to do the same as android. For simplicity take a look at the diagram below:-    USER WEB APPLICATION helps organizations to reduce the cost to create process, distribute, retrieve and manage the paper based information by digitizing the information.   * E-commerce improves the brand image of the company. * E-commerce helps organization to provide better customer services. * E-commerce helps to simplify the business processes and makes them faster and efficient. * E-commerce reduces the paper work. * E-commerce increases the productivity of organizations. It supports "pull" type supply management. In "pull" type supply management, a business process starts when a request comes from a customer and it uses just-in-time manufacturing way.     ADMIN DASHBOARD helps organizations to reduce the cost to create process, distribute, retrieve and manage the paper based information by digitizing the information.   * E-commerce improves the brand image of the company. * E-commerce helps organization to provide better customer services. * E-commerce helps to simplify the business processes and makes them faster and efficient. * E-commerce reduces the paper work. * E-commerce increases the productivity of organizations. It supports "pull" type supply management. In "pull" type supply management, a business process starts when a request comes from a customer and it uses just-in-time manufacturing way.     Pure React Client Application  Consume Admin API  User Features  PWA Features  Admin Features  API for Client Application  Laravel and React Scaffold      ANDROID APP helps organizations to reduce the cost to create process, distribute, retrieve and manage the paper based information by digitizing the information.   * E-commerce improves the brand image of the company. * E-commerce helps organization to provide better customer services. * E-commerce helps to simplify the business processes and makes them faster and efficient. * E-commerce reduces the paper work. * E-commerce increases the productivity of organizations. It supports "pull" type supply management. In "pull" type supply management, a business process starts when a request comes from a customer and it uses just-in-time manufacturing way.   ANDROID APP helps organizations to reduce the cost to create process, distribute, retrieve and manage the paper based information by digitizing the information.   * E-commerce improves the brand image of the company. * E-commerce helps organization to provide better customer services. * E-commerce helps to simplify the business processes and makes them faster and efficient. * E-commerce reduces the paper work. * E-commerce increases the productivity of organizations. It supports "pull" type supply management. In "pull" type supply management, a business process starts when a request comes from a customer and it uses just-in-time manufacturing way.   Directly From PWA Feature  PWA IOS Wrapper  Using IOS Webview  Directly From PWA Feature  Android Trusted Web Activity  PWA Android Wrapper  Using Android Webview  Besides this application, we have online payment functionality. So that client from any district in Bangladesh can order product easily. To let the client know about the update of our application or product, we will be using the push notification system to send push notifications. Once the user orders a product, we will notify the user by sending an SMS. For doing that we will be using Short Messaging Service API. At last not least, to keep track of the client location, GEO location functionality will be added. If the user allows the location, the admin will get the client's current location.  **Tools:**   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Platform** | **Language** | **Motive** | **Framework** | **Version** | | Phpstorm | Php | Server-side | Laravel | 8.0 | | Webstorm | JavaScript | Client-side | ReactJs | 17.0.1 | | MySQL-Workbench | MySQL | Database | Query Builder/ Eloquent | 7.4.9 |   **Advantages of E-commerce:**  E-commerce helps you to reach the product all over the country and around the world. Customers can order any product from any corner of the world. People are getting used to shopping on their mobile phones. Whether products have been delivered or not and traffic can be checked easily. With the advance in e-commerce platform technologies, it has become very easy and affordable to set up and maintain an e-commerce store with low overhead. Dealers no longer have to spend a large amount on TV ads or billboards. Merchants can provide a limited amount of information about a product. On the other hand, e-commerce websites allow the space to include demo videos, reviews, and customer testimonial to improve the sells. Personalized messaging allow contacting the customer and to let the customer know about the product. Online sellers do not have to pay rent or wages to employees.  **Disadvantages of E-commerce:**  The worst of the e-commerce disadvantages is when no one can buy things from the store when the site crashes. That’s why it is really important to ensure your website is hosted on the right platform. Customers can’t try before they buy. With argument reality, more stores are starting to add AR elements(Argument Reality) to their store to allow customers to try products on. Ecommerce is highly competitive. By the year 2021, global retail sales have increased to 17.5% wherein in 2015 the total retail sales were about 7.4%.  **[11]**  Finding the right niche is another one of the worst e-commerce disadvantages. Customer can be Impatient. If a customer has a question in store a salesman is ready to answer him. But in e-commerce, there is no guarantee that customers will get a replay. Customers consider shipping times to be one of the worst commerce disadvantages. When customers shop in person she can take the product right away. But in e-commerce, system clients need to wait for a day, a week perhaps a month for that. E-commerce is very popular despite acceptance. There is no guarantee that the client will like the product. So there is a great chance that he will return the product.  In every organization, projects are an essential method to build value. Running an organization with a lack of ideas and no proper schedules planned for projects would lead to failure. This is my project plan and the accordance time.    **Conclusion**:  People are getting used to the internet. In general, today’s business must always strive to create the next best thing that consumers will want because consumers continue to desire their products, services, etc. to continuously be better, be faster, and cheaper. E-commerce is continuously progressing and becoming more and more important to business and technology continues to advance and it is something that should be taken advantage of and implements. | | | | | | | |
| References | [1] Haris Spyropoulos,Valerija Marinkovic, Saturday, November 30, 2019  [2] Haris Spyropoulos, Cardiff Metroplolitran University, Valerija Marinkovic ,Saturday, November 30, 2019 p-1  [3] E-Commerce: A Short History Follow-up on Possible Trends,Vol. 8, No. 7; 2017,URL: https://doi.org/10.5430/ijba.v8n7p130,ISSN 1923-4007 E-ISSN 1923-4015,p-1  [4] DAVID F. RICO,HASAN H. SAYANI  Graduate School of Management andTechnology  University of Maryland University College, RALPH F. FIELD  Graduate School of Management andTechnology  University of Maryland University College  [5] IJBE: Integrated Journal of Business and Economics,DOI: https://doi.org/10.5281/zenodo.1258437  Date of Publication: 4 June 2018  Volume 2 Issue 2, pp. 73-79,Electronic Commerce: Theory and Practice  Margarita Išoraitė, Neringa Miniotienė  Vilniaus kolegija/The University Applied Sciences  [misoraite@gmail.com](mailto:misoraite@gmail.com)  [6] IJBE: Integrated Journal of Business and Economics,DOI: https://doi.org/10.5281/zenodo.1258437  Date of Publication: 4 June 2018  Volume 2 Issue 2, pp. 73-79,Electronic Commerce: Theory and Practice  Margarita Išoraitė, Neringa Miniotienė  Vilniaus kolegija/The University Applied Sciences  [misoraite@gmail.com](mailto:misoraite@gmail.com)  [7] ADVANTAGES AND CHALLENGES OF E-COMMERCE CUSTOMERS AND BUSINESSES: IN INDIAN PERSPECTIVE,Dr. C. Eugine Franco ,Bulomine Regi. S,Palayamkottai, INDIA,Franco et. al., Vol.4 (Iss.3: SE): March, 2016  [8] Evaluation and Implementation of Progressive Web Application,Parbat Thakur,Helsinki Metropolia University of Applied Sciences,6 April, 2019  [9] Evaluation and Implementation of Progressive Web Application,Parbat Thakur,Helsinki Metropolia University of Applied Sciences,6 April, 2019  [10] Ecommerce Disadvantages #2: Customers Can’t Try Before They Buy, <https://www.oberlo.com/blog/20-ecommerce-advantages-and-disadvantages>  [11] 1 – Global eCommerce retail sales  Read More at beeketing.com/blog/future-ecommerce-2019/ © Beeketing Blog <https://beeketing.com/blog/future-ecommerce-2019/>  [12] Rajput, W. (2000). E-Commerce systems architecture and applications. Boston, Mass.: Artech House.  [13] Hedley, S., & Aplin, T. (2008). Blackstone's statutes on IT and e-commerce. Oxford: Oxford University Press. | | | | | | | |