**College of Engineering and Computer Technology**

**APPROVED DESIGN PROJECT for BSCpE Program**

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**Approved Design Project**: LECAPA

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**Abstract**

This paper introduces the development of a web application called ‘LECAPA’. ‘LECAPA’ is an online shop for vehicles’ accessories and parts intended to be used in Cabanatuan City. Items from different shops, big or small, can be seen in the LECAPA. The condition of the items may vary to new and used, even the items from junkyard can be bought for school purposes or for learning purposes.

The researchers will use the Iterative model of System Development Life Cycle (SDLC) in developing LECAPA that involves initial planning, planning, requirements, analysis & design, testing, evaluation, implementation, and deployment.

This provides a centralized platform that aggregates items from different shops, ranging from small businesses to larger establishments. This accessibility allows a diverse range of sellers to reach a broader audience not only that it also introduces a unique feature by allowing the purchase of items from junkyards for educational and learning purposes. This not only supports educational institutions but also promotes the practical application of automotive components in learning environments.

**Introduction**

Nowadays, lots of vehicles can be seen on the road. Some people have trouble figuring out where to park because there are many two- and three-wheeled vehicles in addition to the common four-wheel drive vehicles. But that is not the problem, the problem is that “The newer vehicles the parts are hard to get. And the older vehicles the parts are hard to get” said by the Coats Auto Body Owner Tana Malerba.

Finding the parts needed for a vehicle can cost the owner quite some time and money since getting or requesting a certain item from the dealership or the manufacturer couldn’t get immediately as they do not know when the items will be available.

Auto parts online shops like OLX which is now called Carousell in the Philippines offer used cars, they also do rental of cars and they sell accessories and parts, but it is limited. There is also USED.COM.PH which is also a Philippine online shop which offers only used cars and motorcycles. And last, Ebay Motors. Ebay motors is an American online shop which is like lazada and Shopee. Ebay motors offers new and used parts and accessories of vehicles and not everything can be seen in the Ebay motor given by what the Coats Auto Body Owner said.

During the oral presentation, the researcher presented the vehicles auto parts called LECAPA wherein items from different shop (big or small) can be seen and the condition of items may varied to new, used and even the parts that was in a junkyard now can be bought in LECAPA for school purposes or learning purposes.

Lecapa will have a global chat wherein shop owners, buyers, non-buyers, and some concerned citizens can communicate, share their knowledge and recommend which shop is better or to whom non-seller can negotiate to acquire the desired items for their vehicles. Voice calls will be added too, as they want to directly call the seller.

REFERENCES:

Ivan Aistrop, “*Why is a car parts crisis costing customers time and money*?.” November 2023 [Yahoo! news][The Telegraph]

Elaina Ethans, “New and old car parts hard to get due to supply chain issues, delaying repairs for owners.” July 2023 [ 11 Abc Eyewitness News]

**Design Project Objectives**

The primary objective of this research is the creation of a web application where it is designed to facilitate accessibility for individuals with automobiles or motorcycles.The purpose of the application is to empower every car owner or motorcycle rider within Cabanatuan City to efficiently locate and purchase accessories and parts within their respective vehicles.

The objectives of the project are as follows: (give at least 4 specific objectives)

1. To ensure users have a professional website with information about products, services, and contact details.
2. To establish a safe and friendly environment for sellers and clients, we have implemented strict measures to ensure compliance with safety protocols, fostering positive interactions within the platform.
3. To implement a robust quality assurance framework to assess the condition of items offered on the platform, categorizing them as new, used, or for educational purposes.
4. To implement features such as detailed product listings, user reviews, and a secure transaction system to instill confidence in users.
5. To promote every business of the Filipino community.

**Respondents**

In determining the sample size for the target respondents, we will utilize a stratified random sampling method. Stratified sampling is appropriate as it allows us to ensure representation from different segments of the population. The population (N) in this case refers to all auto part shop owners, vehicle owners, mechanics and the sample (n) will be a representative subset.

**Population (N):**

The population consists of all auto part shop owners, vehicle owners, and mechanics in Cabanatuan City, which can be estimated based on available agricultural census data and local government records.

**Computation Example:**

Suppose there are 70,000 auto part shop owners, vehicle owners, and mechanics in Cabanatuan City, and we want a confidence level of 90% with a margin of error of 2%.

**Sample size** = N/(1+(n\*e^2)

Sample size = 2414

**Total population** = 70,000

**Motor Vehicle** = 45,000

**Four wheel vehicle** = 25,000

Therefore, our calculated sample size (n) is approximately 2414 vehicle owners .

**Stratified Samples:**

Once the sample size is determined, the population is divided into strata based on relevant characteristics such as auto shop owner and mechanic.

An appropriate number of auto shop owners and mechanics will be randomly selected from each stratum to ensure a representative and diverse sample.

**Methodology**

To implement the development stages for LECAPA (Online Shop for Vehicles' Accessories and Parts in Cabanatuan City) using Rapid Application Development (RAD), Agile Model, or Prototyping, each methodology can be applied differently to achieve the defined project requirements, prototyping, rapid construction and feedback gathering, finalization of LECAPA, and implementation. Here's a breakdown of the developmental stages based on these methodologies:

**1.Requirements Specification:**

To precisely identify and describe the functional and non-functional needs of the LECAPA platform, thorough discussions are held with clients, including auto part shop owners, vehicle owners, and mechanics, during the first phase of the project. This will follow the RAD's iterative methodology.

**2.Prototyping:**

Using the Rapid Application Development (RAD), a working prototype of the LECAPA web application will be developed to provide a tangible representation of the proposed system. Key participants, such as shop proprietors and customers, or stakeholders, will benefit from this prototype by better understanding the system's functioning and design. Feedback from stakeholders will be gathered throughout this stage to make the necessary adjustments.

**3.Incremental Development and Evaluation:**

To identify areas for improvement, collect feedback from potential users, store owners, and mechanics using questionnaires, interviews, and usability testing.This method speeds up innovation, allowing the team to quickly adapt to changes and user feedback. Through teamwork, step-by-step development, and ongoing improvement, LECAPA follows a flexible approach that suits the dynamic online marketplace. The outcome is a product that not only satisfies users but also establishes new benchmarks for efficiency and adaptability in the online vehicle accessories and parts retail sector.

**4.Finalization:**

This phase is about refining the product to meet user expectations and preparing for its seamless introduction to the market.Seeking to ensure that all features align with the initial requirements and any feedback received during the development stages. Adjustments are made based on this feedback to guarantee a product that not only meets but exceeds user expectations.As it approach the deployment of LECAPA, user training sessions are conducted to familiarize users with the platform's features and functionalities. This ensures a smooth transition and empowers users to make the most of the platform from day one.In the finalization stage, it will provide a product that stands out for its efficiency and adaptability in the online market for vehicle accessories and parts. By working together, making improvements along the way, and listening to user feedback, it created something that not only meets expectations but also showcases innovation and a design focused on the needs of online shoppers.

**5.Implementation:**

The implementation of LECAPA marks the realization of its vision for an innovative and user-centric online marketplace for vehicle accessories and parts. Through careful planning, collaborative development, and iterative refinement, LECAPA will be made accessible to users.As LECAPA takes its place in the online retail landscape, it will remain dedicated to delivering a product that not only meets but exceeds user expectations. The journey from conceptualization to implementation has been a testament to its commitment to innovation, efficiency, and adaptability in the dynamic realm of online vehicle accessories and parts retail. It will look forward to the continued growth and success of LECAPA as it sets new standards in the online marketplace.

These approaches can be adapted based on the specific needs, preferences, and constraints of the LECAPA project. The choice between RAD, Agile, or Prototyping depends on factors such as the level of user involvement, project complexity, and the need for rapid iterations. It's common to blend aspects of these methodologies to create a customized approach that suits the project requirements.

*Approved during the Design Project Title Presentation on December 7 and 11, 2023.*

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