1. **Introduction**

E-Store allows consumers to directly buy goods or [services](https://en.wikipedia.org/wiki/Service_(economics)) from a seller over the [Internet](https://en.wikipedia.org/wiki/Internet) using a [web browser](https://en.wikipedia.org/wiki/Web_browser).

Nowadays, E-Store is commonly used by most of the establishment. The technology today has allowed purchase of items and having transactions over the internet, hence the term E-commerce has been used to refer this kind of business transaction. Going directly to the store is a tedious and time-consuming activity. In the event that the product is already out-of-stock, it decreases the chance for the company to earn. Out-of-stock statuses are inevitable in the purchasing businesses especially when it is tied-up in consignment basis. The group is dedicated to improve the current system and quality of service of the company, it seeks to cater the needs of customers who do not have the luxury of time to go to malls or the city proper to purchase the desired design of bag the company has

Solar Industries is owned and operated by Mr. Andrew Dy Choi. The current factory is situated along the Capistrano Street. The company mainly manufactures bags, sports bags, backpacks, laptop bags, luggage bags, except for ladies’ bags. They also sell belts and souvenir items; do customized t-shirt printing for conventions and seminars. The company has 200 Branches (Estimated). Their products are available to almost all departments store nationwide. They also cater wholesale orders and individual orders. The company has an average of 1000 volume number of products. 100 average of walk in customer per day (Capistrano Branch Only).

The brands Champ and Racini are subsidiaries of the company.

The company made efforts to reach out to the market. They had strengthened their marketing campaigns by hiring famous personalities to model their products. The company then tried to expand and consign with more department stores. But due to local and foreign brands being more recognized by buyers, the sales remained low.

* 1. **Background of the Problem**

The company single-handedly ships and delivers their products to the department stores where their goods are consigned in. Due to restrictions in logistics, the deliveries to the department stores are often delayed. The company frequently experiences customers looking for a particular design they wanted to buy but are currently not available for display. This is due to the reason that department stores limit the items for display for a particular brand and company, and also storage costs at department stores consigned in are getting expensive after a month’s period if the item is not sold. If a customer orders a particular model of an item, a lengthy process has to be undergone. The customer addresses her request to the saleslady and leaves a contact number with the request. The saleslady then relays the request to the sales supervisor, the supervisor contacts the company if the bag model’s availability. If the bag model is available, the company’s representative contacts the customer directly and informs the customer on the method of payment, shipping costs and the estimated time of arrival for the item to reach from the warehouse to the customer. This lengthy process is tedious and time consuming; an e-commerce website will simplify the process for both the company and the customer as the estimated time of arrival, shipping cost and method of payments is already known by the customer beforehand.

The company also made efforts to be visible in the digital-sphere by creating a company profile on Facebook.com (<https://www.facebook.com/racinibags>), although this serves as a both promotion and an avenue for selling their products online, it is less efficient as a the SKUs (Stock-Keeping Unit) are displayed but the product details (e.g. quantity, and etc.) and the prices were not specified, the prospective customers would leave a comment or a pm (Personal Message) to the page , and the administrator for the site would reply to the customer for the information that the prospective customer inquired for, although doing this once, twice or thrice is bearable for the Facebook profile administrator, but doing this to ten different customers with different bags with different SKUs is tedious for the part of the administrator and time-consuming for the customers as he or she has to wait for the administrator to reply to the inquiry she has sent. The reason why the company does not put the prices along the SKUs is because the items’ prices is subject to changes without prior notice, as updating every products’ prices is labor-intensive.

The company uses their own forms in recording the stocks, manual receipts, and uses manual scheduling for their delivery. Although recording data in paper receipts and paper record books is efficient and serves the company’s transactional needs, but paper has its drawbacks as it is prone to agents of nature that could lead to data destruction.

Furthermore, the company recognizes the need to keep with the current trends and technology in the business world. E-Store provides Solar Industries an avenue to participate in the emerging online market for the company to be able to sell and promote their products online

* 1. **Overview of the Current State of Technology**

The current operation of the Solar Industries is in social networking site like Facebook and they have their website ([www.racini.com](http://www.racini.com)) but only for advertising their products and no online transaction made. The owner of the store will upload the images of the products in their Facebook page and the customer will just comment or message. If they want the product and tell them that they want to reserve the item and they will go to their store to fill up for P.O (Purchase Order) form and present the payment. When it comes to the mall the company will get the reports from the mall and they will check what products are saleable then they will deliver again their saleable products to the mall.

The company uses MS Excel for recording their daily sales, weekly sales, monthly sales, and annual sales report of their profit and expenses, they also have charge invoice form, delivery and customer receipt.

* 1. **Project Rationale**

Company

* An E-Store would be ideal tool for the company to reach potential buyers in the market. The E-Store is the best solution for the company’s needs, as they are looking into new ways to sell their products online.

Online Buyers

* An E-Commerce website is also beneficial to online marketers as it simplifies purchase of products as the website would feature a wide range of bag models to choose from. Not limited to the displays in malls, the e-commerce website is available 24/7 this allows customers to buy Solar Industries’ products at their own time and convenience.

1. **Project Description** 
   1. **Problem Statement**

**General Problem**

* How will the company be able to cater purchases online for the customer to view the variety of Solar Industries product and be able to purchase online and have it delivered in the customer’s doorsteps?

**Specific Problem**

* How to develop a website that could showcase the different products of Solar Industries.
  + Solar Industries has consignment in malls but the products displayed are limited as the storage fee is getting expensive as the number of products increases.
* How to develop a website that could track the status of the customer’s orders.
* The client has no way of checking the status of their orders as the transaction is done with the correspondence of the order processor and the client though the social media platform Facebook.
* How to develop a system that could generate reports.
* The company currently does not have a system to check and monitor the online purchases. The purchases online are visited under the store purchases in Capistrano.
* How to develop a system that could let the costumers order products even after business hours.
* The consignment purchases are strictly dependent on the establishment’s business hours.
* How to develop a system that could allow the customer to pay online?
* The company does not generate online payment transactions.

**2.2 Proposed Research Project**

**2.2.1 General Objectives**

To be able to develop an E-Store System for Solar Industries, to attract the customers to view their products, easy process for reservation/ordering and payment through PayPal.

1. **Specific Objectives**

* To be able to develop a website that could showcase the different products of Solar Industries.
* The website will contain a product catalog which will contain the price, specifications and the image of the product. This will be able to showcase all the products of the Solar Industries which are ready to be shipped.
* To be able to develop a website that could track the status of the customer’s orders.
* The order place of the customer will contain the status “shipped” or “pending” this will allow the customer to visually inspect the status of their order.
* To be able to develop a system that could generate reports.
* From the database the reports could be derived. This will to allow the company to track the sales and inventory of the products that will sold online.
* To be able to develop a system that could let the costumers order products even after business hours.
* The website will allow the ordering of products 24/7 this will maximize the earning potential of the company as the website is not dependent on any establishment business hours.
* To be able to develop a system that could allow the customer to pay online?
  + The website will contain an API from PayPal which will allow the credit cards via PayPal. The website will also allow bank payments.
* **Scope and Limitation**

1. **Scope** 
   * + **Registration, Login & Logout Module** 
       - This is the method where Administrator, Manager and Online Processing Representatives can get different access levels of the website.
     + **Online Ordering**

* This module will cater orders from customer.
* Shopping Cart
* Product Confirmation
* Cancellation
  + - **Monitoring Module** 
      * This module monitors the sales and inventory of the stocks in the warehouse to be sold online.
    - **Online Payment** 
      * This module caters the payment methods for customer purchases.
* **Mode of payment**
* PayPal
* Bank
  + - **Product Information**
* Product Quantity
* Product Price
* Product Image
* Product Description
* **Reports**
  + Sales Report
  + Invoices/Receipt
  + Product stock availability
* **File Maintenance**
* Back Up
* Archive
* Recovery

1. **Limitation**

* **Overseas Shipping**
* The proposed system does not ship products outside the country because shipping outside the country is expensive for the customers.
* **Multiple Currencies**
* The proposed system only caters for Philippine peso.
* **Language Version**
* Limited for English version

**2.2.4 Methodology**

**Inquiry Method**

* Preliminary interview with the Solar Industries owner, Mr. Andrew D. Choi.
* This is done to be able to directly know the current problems of the company, and inquire about data and information relevant to the construction of the system.

**Data Gathering Method**

* Online Research Method
* This is done to be able to study and know more about the modules contained in common e-store.
  + Determine the current technologies to be used in the construction of the e-store.

**Type of Method**

The proponents decided to use the spiral model as a formal methodology of the study because it is convenient and their process can be repeated. The baseline spiral starting in the planning phase, requirements are gathered and risk is assessed. Each subsequent spiral builds on the baseline spiral. **Requirements** are gathered during the planning phase.  In the**risk analysis phase**, a process is undertaken to identify risk and alternate solutions.

**The Spiral Model comprises of the following:**

**1. Planning Phase**

In the planning phase, procedure will be carefully laid down to meet the following: A) what company is site of the study? B.) Drafting of authorization letter which will be submitted to the company for approval. C.) Problems analysis and alternative approach. D.) Setting of appointment for interview and data gathering procedures. E.) System development plan and work plan and group member’s responsibility designation.

**2. Risk Analysis**

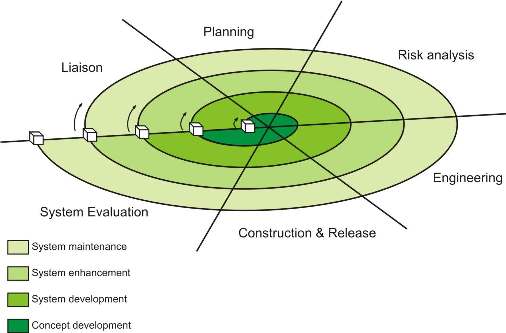
The proponents will consider and categorize in different ways such as the project risk, technical and business risk. Project risk identify potential budgetary, schedule, personal, resource, customer and requirements problems and their impact on the system development. Project complexity, size and structure will also be defined as risk factors. Technical risk identifies potential design implementation, interfacing verification and maintenance problem. In addition, specification ambiguity, technical uncertainty, technical obsolescence and leading edge technology are also risk factor. Technical risk will occur because a problem is harder to solve then the researchers thought it would be.

The researcher will look deeper on risk concerning the hardware and human factor. How security will be designed according to its level, hardware malfunction and human capability or handle the system.

**3. Engineering**

The proponents will use the system approach, which includes the following construction process: a.) determining and analyzing requirements, b.) producing detailed specification of the system and c.) Identifying the best programming approach that suits in building the system. Different tools will be used such as diagramming and search algorithms, in order to come up with good quality software.

**Spiral Model**



1. **Project Management**

3.1 Calendar of Activities

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  | JULY | | | | | | | | | | | | | | | August | | | | | | | | | | | | | | | | | | | September | | | | | | | | | | | | |
| Activities | Week 1 | | | Week 2 | | | Week 3 | | | Week 4 | | | Week 5 | | | Week 1 | | | Week 2 | | | Week 3 | | | | Week 4 | | | | Week 5 | | | | | Week 1 | | | Week 2 | | | Week 3 | | | Week 4 | | Week 5 | |
| Interview with Company |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |  | |  | |  |  | |  |  |  |  |  |  |  |  | |  | |  |
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| **Documentation** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Chapter 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |  | |  | |  |  | |  |  |  |  |  |  |  |  | |  | |  |
| Chapter 2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |  | |  | |  |  | |  |  |  |  |  |  |  |  | |  | |  |
| Chapter 3 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |  | |  | |  |  | |  |  |  |  |  |  |  |  | |  | |  |
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| **System** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Data Gathering |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |  | |  | |  |  | |  |  |  |  |  |  |  |  | |  | |  |
| Design |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |  | |  | |  |  | |  |  |  |  |  |  |  |  | |  | |  |
| Implementation |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |  | | |  |  |  | |  |  |  |  |  |  |  |  | |  | |  |
| Verification |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |  | |  | |  |  | |  |  |  |  |  |  | | |  | |  | |
| Maintenance |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |  | |  | |  |  | |  |  |  |  |  |  | | |  | |  | |

3.1.1 Description of Activities

The following are the tasks to be accomplished by the proponents to compete the project:

1. Data Gathering
   * Data gathering is one of the most important factors in constructing the e-commerce website. The first week of July will be allotted for this phase of the study. The proponents will conduct an interview with the company owner, Mr. Andrew D. Choi. The proponents will ask sensible questions that could possibly answer the current inherent problems of the company.
2. Requirements
   * The gathering of requirements phase is scheduled to occur in the 2nd week of July. This is the phase wherein the proponents would determine the resources needed by proponents and the company for the e-commerce website to be built. This is done through the research in the World Wide Web for the current technologies, frameworks and APIs used by commercially deployed e-commerce websites. Online articles are also used as references to determine the current trends in the e-commerce industry. Open-sourced frameworks, APIs and Source codes will also be used and gathered in this phase.
3. Design
   * The design phase is where all the system-related design will be implemented this is scheduled in the 3rd week of July. The proponents will use an open-sourced Php framework, Code igniter, to build the e-store website. All the modules will be designed in this phase.
4. Implementation
   * The implementation phase is where all the system construction is done; the modules are to be made using the Codeigniter Php framework, and so as other open-sourced third-party APIs for online payment. This phase is scheduled to occur in the 4th week of August until the 4th week of September.
5. Verification
   * The verification phase is where the local testing of the completed e-commerce website will be conducted. The company owner will take part in the testing, this is done to make sure if the requirements are thoroughly complied, should problems arise, an allotted time for preliminary fixes will be allowed. After all the fixes have been made, the website will be deployed to the World Wide Web. The schedule of testing and fixes are to occur in the last week of September.
6. Maintenance

- Another testing will be done after the deployment of the website should bugs arise, secondary fixes are to be done. The proponents will then schedule the fixes on the first week of October. The dummy entries are to be removed and replaced by the correct product numbers, the database will be emptied from dummy entries for the company to replace the correct product numbers and details that are ready to be shipped for online buyers.

3.2 Resources

3.2.1 Hardware

Input Devices

The proponents will make use a QWERTY keyboard and a mouse (PS/2 Compatible or Wireless) to input order and shipment details.

Output Devices

The proponents will make use of a monitor that supports 800x600 or 1024x768 screen resolution.

3.2.2 Software

Mozilla Firefox

The proponents will make use of this browser as this browser complies with the web standard.

Codeigniter Framework

The proponents will make use of this specific framework for website development.

Third-party API

Third-party APIs will also be used to be extended in the Codeigniter libraries for faster development.