

**"CROP PRODUCTION TRACKING SYSTEM OF
MUNICIPALITY OF STA. MARIA"**

MARK MICHAEL VERZOLA

REYMAR JAY GATMEN

JAYSON MILANES

JACKIELYN MINA

AYANA ELIZARDE

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**TABLE OF CONTENTS**

TITLE PAGE.....	i
APPROVAL SHEET.....	ii
ACKNOWLEDGMENT	iii
DEDICATION	iv
EXECUTIVE SUMMARY	v
CHAPTER	
I INTRODUCTION	
Project Context	1
Purpose and Description	5
Statement of Objectives.....	6
Scope and Limitation	7
II REVIEW OF RELATED LITERATURE	
Types of Crop Tracking System	10
manual	10
computerized	10
Relationship of Computer to Farming.....	11
SUMI	13
III TECHNICAL BACKGROUND	
Unified Process	14

**IV METHODOLOGY**

Project Plan.....	17
Data Gathering Procedure.....	19

V RESULTS AND DISCUSSION

Result of Objective no. 1.....	22
Context Diagram.....	23
Result of Objective no. 3.....	24
Data Flow Diagram	25
Use Case Diagram.....	26
Entity Relationship Diagram	27
Screen Shot of the Developed System.....	28
Result of Objective no.3.....	34
Implementation Plan.....	41

VI SUMMARY, CONCLUSION, AND RECOMENDATION

Summary.....	46
Conclusion.....	47
Recomendation	48

BIBLIOGRAPHY..... 49**APPENDICES.....** 51



Chapter I

INTRODUCTION

Project Context

The emergence of technology, made possible by the development of the rational faculty, paved the way for the first stage: the tool. A tool provides a mechanical advantage in accomplishing a physical task, and must be powered by human or animal effort. (Technological evolution, 2015)

Technology now is very common to almost everything. Technology evolves over time: "machines started as disparate pieces of seemingly unconnected technologies, but like humans, they also have an origin and a process of evolution". Like the computer, now a days it's not only use for educational purpose but it's now use for creating and developing application, system that would use by human for their security. Education started when most of the Human race was living in caves. Technology, as we know, it has only been going for maybe 1,000 years. Regardless of all the good things that technology has brought to the Human race Education is the real breakthrough and is more important than any tech bright idea in the last 10,000 years. Psychology is very important when it comes to educating children. Since children learn faster than adults, exposing them to technology at an early age enables a child to grasp technological concepts in the future. Also, children who have been exposed to technology do better in: math, reading, and writing.



At minimal, basic computer skills are required to complete many assignments. At large universities many of the classes are only available via the internet or television. So remember to log on before you get locked out. The main reason being that technology is supposed to make our lives easier by coming up with ways to improve them. (Brian Arthur, 2009)

Crop production is a complex business, requiring many skills (such as biology, agronomy, mechanics, and marketing) and covering a variety of operations throughout the year. It starts from soil preparation to harvesting and storage of the produce. There are many new innovations in crop production during the recent years due to technological advancements. Crop production generally refers to the growing of crops either for sale or domestic consumption. A crop refers to the produce of plants that are cultivated like cereals, vegetables and fruits. If it were cash crop production for instance, they would be for sale only. (New Trends In Crop Production, 2014)

Traceability is the new buzz word in agriculture. Mad cows, botulism and bioterrorism have created a huge demand for traceability in our food system. (Tracking System, 2014)

In today's competitive world, differentiation is a significant factor in the success of the service provider. Once the basic services, such as voice telephony, are deployed, SMS provides a powerful vehicle for service



differentiation. If the market allows for it, SMS can also represent an additional source of revenue for the service provider.

The benefits of SMS to subscribers center on convenience, flexibility, and seamless integration of messaging services and data access. From this perspective, the primary benefit is the ability to use the handset as an extension of the computer. SMS also eliminates the need for separate devices for messaging because services can be integrated into a single wireless device- the mobile terminal. (V Vimal Kumar, 2008).

Santa Maria, Ilocos Sur must have been already an organized settlement before the Spaniards came to the Philippines. When Captain Juan de Salcedo conquered the Ilocos in 1572, they found out that the people were already engaged in a brisk trade and commerce with the Japanese and the Chinese. The people's main industries were fishing and farming and to some extent weaving of cotton cloth and pottery.

Sta. Maria Ilocos Sur is a third-class partially urban municipality in the province of Ilocos Sur, Philippines. Located in a fertile region with a cool tropical climate, the principal crops of Santa Maria are corn, rice, sugarcane and tobacco. Santa Maria's economy remained docile for almost four decades, subsisting only with fair performance in the aquaculture and agricultural ventures with no new developments in-place to create job opportunities in the commercial sector. Tourism industry's growth remains to be seen in the long-term. Industries relative



interest to the town has to be developed and the corresponding infrastructure must be funded and implemented accordingly to create and sustain future development. (Santa Maria, Ilocos Sur, 2014)

Information. This system makes information of crop production available to the farmers forwarded to the office of Local Government and Department of Agriculture offices.

Information. With the help of this study the agricultural products of Farmers of Santa Maria will be intensively monitored by the use of the Crop Production Tracking System installed within the municipality.

Information. This study serves as a major part of the farmers' improvement if they developed their skills in terms of efficient farm management, productivity, integrated pest control, and quality control. The use of this system will be extremely useful in their yield improvement and the most promising in budget saving.

Information. This study, however, may have some disadvantages such as poor connectivity and slow connection speed. It can also be used in different situations and different locations and fields.



Purpose and Description

The Crop Production Tracking System of Municipality of Sta. Maria is relevant to the following:

Administration. This system makes information of crop products produced by the farmers forwarded to the office of Local Government Unit of Department of Agriculture office.

Farmers. With the help of this study the agriculture production of the farmers of Santa Maria will be intensively monitored by the use of the Crop Production Tracking System installed within the municipality.

Researchers. This study serves as a major part of the course requirement as it has developed their skills in terms of self-esteem, time management, practicality, strategic planning and patience. Hence, they are able to obtain the necessary information on time and reporting it in the most presentable manner they can.

Future Researcher. This study serve as a response and it can help other future researcher for their own research studies. It can also be guide for others and those will conduct some related studies.



Statement of Objectives

The capstone project aims to create and develop a crop production tracking system for the municipality of Sta. Maria Ilocos Sur.

Specifically, it sought to achieve the following:

- a) To determine the existing system they use to monitor the farmers and their crops.
- b) To create an application which has a network technology that provides information of farmers and crops to the office of the Local Government Unit of Department of Agriculture of Sta. Maria.
- c) To determine the usability of the Crop Production Tracking System in terms of:
 - a. Efficiency
 - b. Helpfulness
 - c. Control
 - d. Learnability



Scope and Limitations

This study focused on creating a Crop Production Tracking System using SMS technology of the Municipality of Sta. Maria. This wireless technology helps the employees of the LGU of Department of Agriculture when it comes for making their work easier especially on monitoring the farmers and their crops.

The limit of those users who are willing to use the service that is not registered and not residence of the municipality of Sta. Maria. This system is on the web but the admin only can use and this is not a website.

Although setting the system up takes a little time, the system is user friendly and农民 is less time spent looking for what they need to do. It is also a good system because the certificate holder can produce the crop and end up doing small bit of work in maintaining the farm and getting the reward service at the end of the final product.

They can keep the crop tracking system to make sure the farmer is not doing any illegal products. This system can help the farmer to get the reward service at the end of the final product.

This system will help the farmer to get the reward service at the end of the final product. This system can help the farmer to get the reward service at the end of the final product.



Chapter II

REVIEW OF LITERATURE

According to Tracy Lundberg-Schimpf and Kelowna (2004) tracking system serves as an easily accessible tool for the farmer to mark their own progress or to source any detail about their product without digging through mountains of paper. Organic certification requires documentation of various items and processes.

Tracking systems are only as good as the information entered. A common complaint is that it adds to the paperwork most farmers dislike. Although setting the system up takes a little extra time, we find that the end result is less time spent looking for information or trying to compile it from memory during the certification or inspection process. The farmer ends up doing small bit of work throughout the growing season and almost no time at the end of the year.

They develop the crop tracking system by methods of Crop Planning during the season of rice production, famers sit down to plan the fields, order seed or plants and try to estimate what their final harvests will be. Using a standardize form farmers will perform their duties quickly (and at less expense to the farms). Having a history of previous years will also assist in the planning process. Another method is harvest and sales documentation continuing to add information to the same form makes for one-stop progress reports and easily accessible



results of your extensive planning. Adding sales information completes the cycle from seed to customer. The completed form can be used for future field planning, yields and sales information for the certification process.

~~Harvest System~~ The harvest system is a tracking system which tracks the production of a particular crop or product. Lot numbering is one of the most important parts of any tracking system. Each crop or product must be assigned a unique number which makes it easily identifiable. Once we assign a lot number to a particular harvest, we will note that number on all invoices to our customers. If the number is recognizable, then we can tell instantly at a later date where, when and how the crop was produced. What we are trying to track is possible points of contamination or quality concerns.

~~common. By creating programs~~ Another data type of crop, date of harvest this date shows the time that was unique to this particular crop or harvest. If a crop is harvested on various days throughout the summer, then it would be best to identify the exact date. Lastly, invoicing these lot numbers must be identified on invoicing. Commercial customers must receive the lot numbers of the produce they buy. If the main sales are farm gate or farmer's markets, then the lot number sold on that particular day must be noted somewhere in the records.



Types of Crop Tracking System

According to Tracy Lundberg-Schimpf and Kelowna (2004) there are different types of Crop Tracking System and they are:

Manual System. The manual system is a low cost option if the farm is not yet computerized. All that is required are copies of the tracking document and a binder to keep everything together. For crops that have multiple planting and harvest dates, it is recommended to have a separate sheet for each type.

Computerized System. There are multiple spreadsheets programs on the market and your computer more than likely already has one on it. We used Microsoft Excel as it seems to be one of the most common. Spreadsheet programs eliminate the need for multiple sheets as lines can be added whenever needed. With a computer, your tracking document can be customized to your own farm's needs. Columns can be made larger, smaller or added to if you want to keep track of more information than is listed here.

Philippines Agriculture

Agriculture in the Philippines employs 32% of the Filipino workforce as of 2013, according to World Bank statistics. Agriculture accounts for 12% of Filipino GDP as of 2013, according to the World Bank. Rice production in the Philippines has grown significantly since



the 1950s. Improved varieties of rice developed during the Green Revolution, including at the International Rice Research Institute based in the Philippines have improved crop yields. Crop yields have also improved due to increased use of fertilizers. Average productivity increased from 1.23 metric tons per hectare in 1961 to 3.59 metric tons per hectare in 2009.

Agriculture remains a critical sector of the economy although recent income accounts surveys show that agriculture has been declining in its share of the Philippine GNP or GDP (Gross National Product/Gross Domestic Product). It was – and perhaps will always be – a key element of the country's food security as well as the major source of household income for over half of the population. Some economists argue that shocks in the agricultural sector mainly explain its instability relative to other sectors. The first part of this survey of related studies would thus dwell on the early efforts to explain production variability in the sector. (Agriculture in the Philippines, 2014)

Relationship of Computer to Farming

Farmers tilled the soil and harvested acres of crops for centuries without the use of modern technology, but the computer's arrival in the world of farming helps with agricultural work in a range of ways that might surprise you. Like many small-business owners, farmers use basic programs and computer applications to keep records such as budget



information, farm equipment inventories and animal health forms. Farm implements such as tractors and fertilizer sprayers have computers that farmers can program to automatically adjust the type and amount of fertilizer that the equipment applies, resulting in improved soil and higher crop yields.

If we say network architecture, it means hardware. Hardware is the most important part of network architecture. It is the main consideration in designing network architecture. According to Ash et al.(2008), network hardware must properly selected to ensure that each network device (pc, laptop, netbooks etc.) can communicate effectively. Network hardware directly impacts network performance.

In addition to what was stated by Abeck, et al.(2008), hardware upgrades is necessary for the network devices to keep up. Hardware is required to meet the growing demand for a service and to provision of more customers. Purchasing network hardware is a substantial investment of the company's budget and the credibility of the individual making a purchase. You would have peace of mind when you make the investment, an iron-clad guarantee which the equipment purchased is a high-quality, perfect-fit solution to a company's monitoring needs.

Many networking devices today use hardware based networking devices. Virtual private network devices for instance. According to the article published by searchsecurity.techtarget.com (2002), software



based VPN solutions require more maintenance compared to hardware based VPN. Software based requires hardening the operating system installed whereas hardware based operating systems were already hardened and more likely patched. In addition, hardware based solutions is more secured compare to software based solutions.

SUMI (Software Usability Measurement Instrument)

According to Tanja Arh and BorkaJermanBlazic (2008), software usability is one aspect of Human-computer interaction that can benefit from knowledge of the user and their tasks. However, in practice not much attention is given to this issue during testing. One set of methods for determining whether an application enables users to achieve their predetermined goals effectively and efficiently is usability evaluation with end users.

Figure 1. Unified Process (UP)

According to Jeff Sutherland, The Unified Process (UP) is a process-oriented, computer-oriented, iterative and incremental development of process framework. The UP is based on practices from different areas of software systems, including user needs and requirements analysis, and a wide range of modeling and architectural construction, as well as common application domains and implementation platforms.



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