Computerized Information System for Barangay Pulong Buhangin,

Sta. Maria Bulacan

Introduction

The rapid growth of technology has contributed a lot to the continuous progress of all classes of industry. However, some sectors today seem to be left behind in adapting the use of different methods to allow progress on their part. Nowadays, business people define the application and problems to be solved by the computer. Unfortunately, this potential has not been fully recognized or even adequately realized in some business. It is because users may not fully understand the capabilities and limitations of modern computer technology. (Lado, Maloloy-on, Perez, Rizaldo, Tacocong, 2017)

Computerization is a control system that manages processes in the industrial workplace. It reduces human errors and processing time, thus it can boost productivity and result in a high quality of production. This can result in a system well integrated process that can perform much faster and more accurate than the manual process. (Lado, et al, 2017)

An information system is an organized system for collections, organizations, storage and communication of information's. More specifically, it is the study of complementary networks that people and organizations use to collect, filters and process, create and distribute data. (Saram, 2016)

The innovation of technology to us consists of advantages and disadvantages, as we all know the main purpose of technology is to lessen workloads of every person. Communication thus enhanced, people can communicate easily and also the all the

questions nowadays can be answered by the use of the technology, in terms of communications, transportations and even all the services that was once only humans can give can be now given by technology itself.

Project Context

Barangay Pulong Buhangin, has a land area of 1,438 hectares or 14.38 km, Pulong Buhangin is the largest barangay in Sta. Maria, Bulacan, larger than the combined land area of the Municipality of Pateros and City of Navotas in Metro Manila. The barangay is located seven kilometers northeast of Santa Maria. In 2015 the total population of the barangay is 36,893 as of this year 2019 the population of the barangay approximately 45,000 and with a total number of 12,000 houses.

The collecting of data and information of the constituents using the manual process of all the data's will being written in a logbooks a lot of information will be stored to a file cabinet the data is not secured sometimes data will be loss or because of the too many files in the file cabinet it is not easy to find again it takes times to search for a single file.

The Barangay officials of Pulong Buhangin used an existing system that can print certificates and other barangay issuances but all the certificates are not updated and it can't update the signatory of officials in the certificate, the barangay decided to not use the existing system and back to manual processing of giving barangay issuances using manually typing it consumes time in issuance certificates. In using the manual process they encounter a problem in giving barangay issuances in constituents they cannot identify the person if there a pending case in blotter and on scheduling the hearing they only have logbooks to schedule the hearing because of the too many hearing schedule in the logbooks sometimes the schedules on the logbooks will be forgotten. The services they given became

sedate, all the information of the constituents will be file in the logbooks then stored in a file cabinet including the logbooks for the blotter in other file cabinet data's not secured being written to logbook and the list of the information of the constituents. The barangay staffs are the ones who prepares permits, certificates transactions community tax, business taxes, and other fees through the use of the existing process

Thus, the proponents proposed a Computerized Barangay Information System that can print certificates, permits and other barangay issuances in fast and better than the manual process of giving services in constituents and it can update signatory of officials in the certificate, in blotter the system will notify the barangay clerk if the person who will get barangay clearance has a pending blotter. The system will also has a function for creating hearing schedule, the system will notify the current user the time of the hearings on what day and also there is no need to use logbooks for the blotters, the system has the details of the blotter that can access by the barangay clerk it can be printed and all the information of the constituents can now store to the database for its safety and unlike before the data's can now find easily by the use of the search function on the system. Then for the unique features the proponents decided to develop on the system a visual incident map that can identify the most prone or reported area.

Purpose and Description of the Project

The purpose of the project is to develop an enhance system that would meet the needs of Barangay Pulong Buhangin and to ensure that the system will maintain residents record that will be used for long a time, which is accessible for verification, monitoring and reference purposes. Likewise, the system can automate the record keeping process that can lead to efficient and accurate reports generation and proper file management and to

create a system that will help the community in having a fast service on giving certificates and other issuances of the barangay and to have also to develop a unique features an visual incident map that can help the barangay to identify the most prone or reported area in the Barangay Pulong Buhangin, Sta. Maria Bulacan.

Objective of the Project

General objective

The main goal of the project is to create a Computerized Information System for Barangay Pulong Buhangin, Sta. Maria Bulacan that will help them with their transactions.

Specific objectives

- To stores data and information in the database to avoid data loss
- To speed up the services given by the barangay
- To enhance the transactions of the barangay to the constituents
- To create a visual incident mapping of the most reported area.

Scope and Limitations

Scope of the project

The admin or the barangay captain only the one who can give permission on what the barangay clerk can do on the system then the system will provide log-in for the barangay clerk so that the files of every constituents will be protected and safe for unauthorized access. The resident's information is stored in a database for storage and retrieval. In the system the information of the resident can be edit and updated by the barangay clerk. It also has a hearing scheduler in which can be used to set a hearing on blotter, the system also have the blotter details, the barangay clerk will see the blotter details of every person and it show the case status. In the system it has a logs to recognize

the doings of the users. The system is capable of recording and printing the barangay certifications, clearance and permits requested by the residents such as community tax certificates, Cedula, barangay Indigency, Business Permits etc.

The proposed system has a unique features that will show the map of the prone and reported areas in all the cases on the blotter.

Limitation of the project

In all the barangay issuances like certificates, permits and clearances that will be given on the constituents does not include the following:

- In the certificates, permits and clearances there is no printed signatures and
- It can't apply thumb marks.
- Limitations in handling payments

Significance of the Project

The proposed system can benefit the following:

Barangay officials/ staffs. The one who manages the files and information of the barangay for it will bring easy access to the data they need. This will also eliminate tons of papers they usually keep and allow the system to store it in such a manner that can be easily accessed.

Residents. It will be easier for them to request for certificates and services because of the information that barangay have about them. This will also assure the residents that their information is properly secured and maintained through the use of the proposed system.

Proponents. The proposed system will help the proponents increase the personal knowledge of problem-solving and, developing skills and interests in programming.

Future researchers. This proposed system may be used as reference data in conducting new research.

Technical Background

The Technicality of the Project

The proposed system needed three or more computer that has passed in the requirements both software and hardware in running the system, the computer will be used by the barangay staffs in inputting the information of the constituents and the other one computer will be the server which the data's of every constituents will be stored and if it will be needed they can eventually retrieve it in the database on the server.

Google API's or Virtually Mapping will be used to identify the places on the Pulong Buhangin on most reported area.

This proposed system will required properly trained users to avoid unorganized data, incorrect information and system malfunction so the proponents will provide training before the system will be used in the Barangay Pulong Buhangin.

Details of Technology to be Use

Visual Studio 2012.Is an integrated development environment (IDE) from Microsoft. Use it is used to develop computer programs, as well as websites, web apps, web services, and mobile apps. The Barangay Information System will run into this software.

SQL Server Management Studio 2012.SQL Server is Microsoft's relational database management system (RDBMS). It is a full-featured database primarily designed to compete against competitors Oracle Database (DB). Creating a database for the Barangay Management Information System

Development Phase

Software requirements

Table 1.

Operating System: Windows 7

System Requirements for Windows 7	
Processor	1.6 GHz or faster processor
RAM	1 GB of RAM (1.5 GB if running on the virtual machine)
HDD	10 GB of available hard disk space for a typical installation 600MB of available hard disk space (language pack)
Graphics Card	5400 RPM hard drive. DirectX 9-capable video card running at 1024 x 768 or higher display resolution.

Table 2.

Technology: Microsoft Visual Studio (C#)

System Requirements for Microsoft Visual Studio (C#)	
Processor	1.6 GHz or faster processor
RAM	1 GB of RAM (1.5 GB if running on the virtual machine)
HDD	10 GB of available hard disk space for a typical installation 600MB of available hard disk space (language pack)
Graphics Card	5400 RPM hard drive. DirectX 9-capable video card running at 1024 x 768 or higher display resolution.

Table 3.

*Database**:** SQL Server 2012*

System Requirements for SQL Server 2012	
Processor	2.0 GHz or faster processor
RAM	4GB
HDD	6GB of available hard disk space
Graphics Card	SQL Server requires Super-VGA (800x600) or higher resolution display.

Hardware requirements

Table 4.

Hardware

Processor	2.50 GHz Dual Core and Up
RAM	4GB or higher
Hard Disk	160 Hard Disk Sata
Monitor	19inch Monitor 1366x768
Printer	Epson L360
USB Camera	Portable Camera 3 Mega Pixels and Up
	Mouse and Keyboard
	Internet Connection 2mbps and Up

Deployment Requirements

Network Framework	Internet Connection 2mbps and Up
Operating System	Windows 7 or Higher Version
Computer Set / Peripherals	At least 2 to 3 computer set with Processor 2.50 GHz Dual Core and Up and RAM 4GB or Higher and also Monitor 19inch 1366x768, Mouse and Keyboard
USB Camera	Portable Camera 3 Mega Pixels and Up

How the Project Will Work?

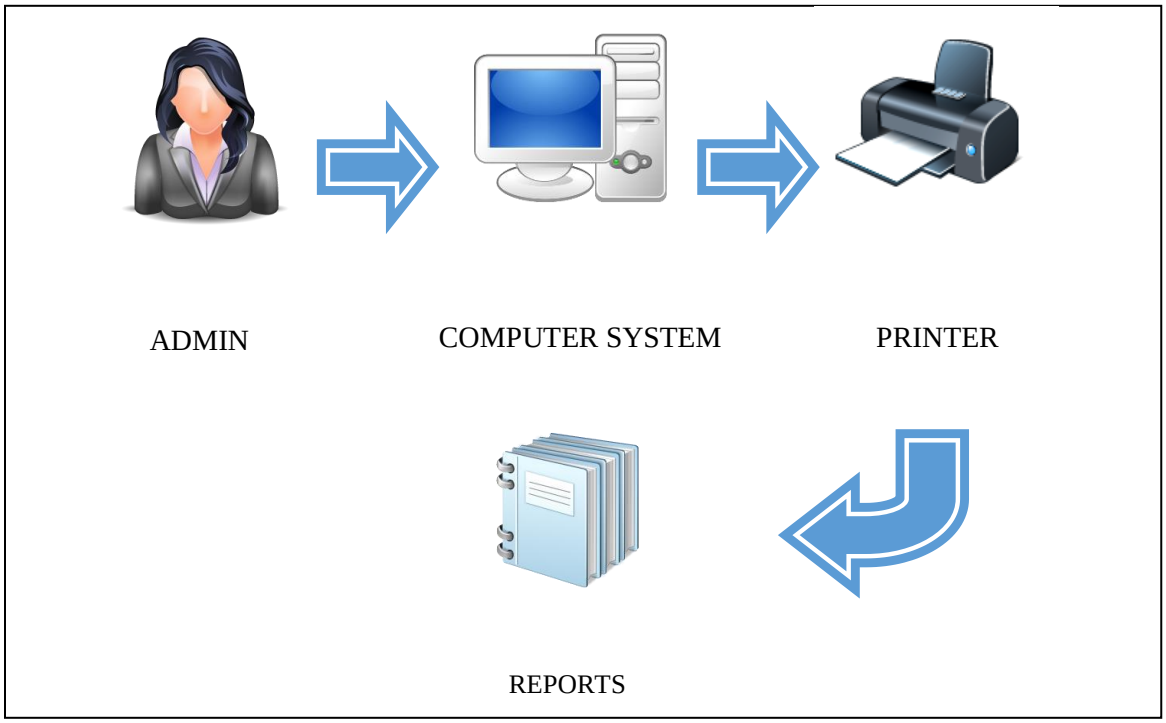

Figure 1. Diagram of Function of the System

Figure 1 presents the functions of the system. In the system, it composed admin the computer unit which includes the Barangay Information System, printer and the reports. The admin is the one in charge in providing the services like barangay permits, certificates, barangay clearances, on the barangay. The admin can be the secretary or assigned staff of the barangay. The admin is the one that can access the whole system he can add, edit, save then update all the information of the constituents. The system has a function that can easily retrieve all the information of the constituents according to the services that the constituents avail. Then the printer used for the printing of reports.

By the use of the Barangay Management Information System, the services of the barangay will be faster. This system will be a great help for the barangay because the system can give them faster transactions to the constituents.

The projected system will be used by the Barangay Pulong Buhangin, in which the admin will create users that can access the system in creating permits and certificates of the barangay, only the users can access in the barangay the admin create a function that in every user they can choose what they can access in the system or what the Barangay officers assigned them only the Barangay Captain can fully access the system.

This system will be a great help for the Barangay Pulong Buhangin, it can help the staffs to minimized their time the system will provide function that if the constituent has an ongoing case or case that person can't allowed to have barangay permits or certificates and other issuances of the barangay.

System Layout

Figure1.Login

Figure2.Main Interface

Figure3. Add Account

*Figure4.*Change Password

*Figure5.*Resident Interface

a. Resident

b. Non- Resident

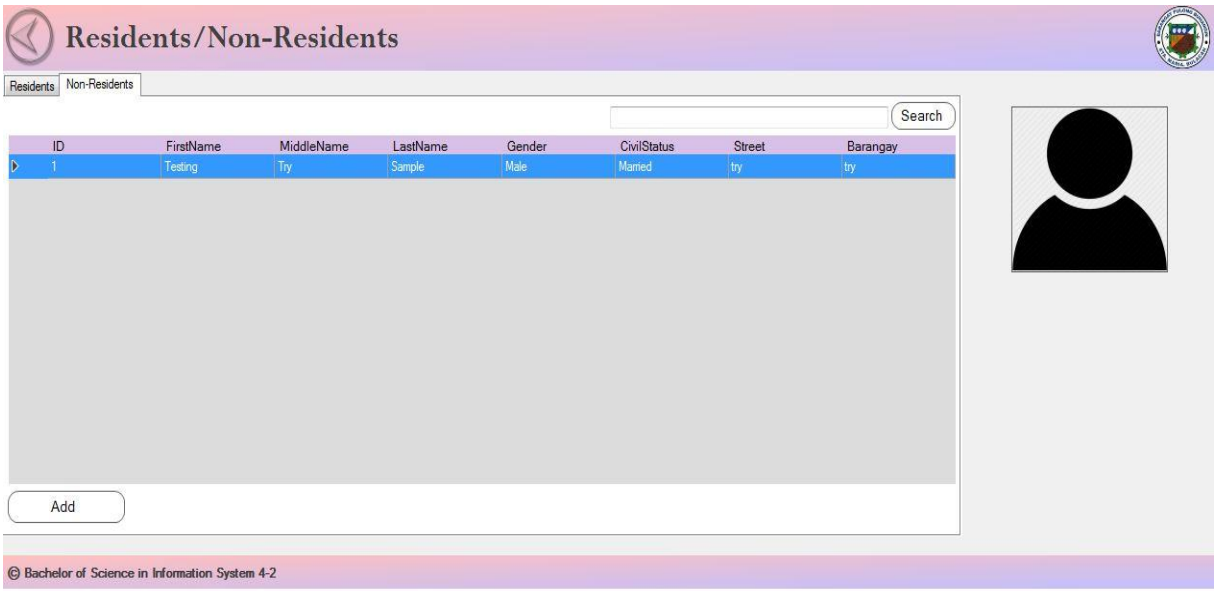

*Figure6.*Add Non- Resident

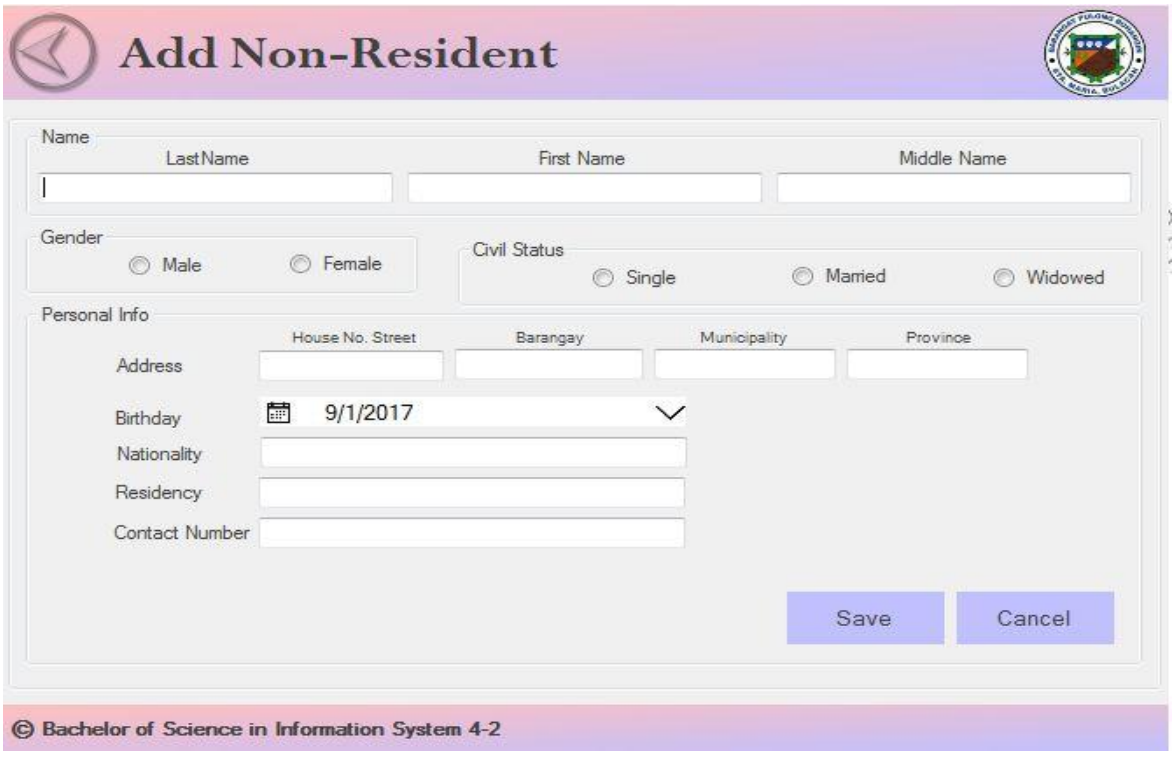

*Figure7.*Add Resident

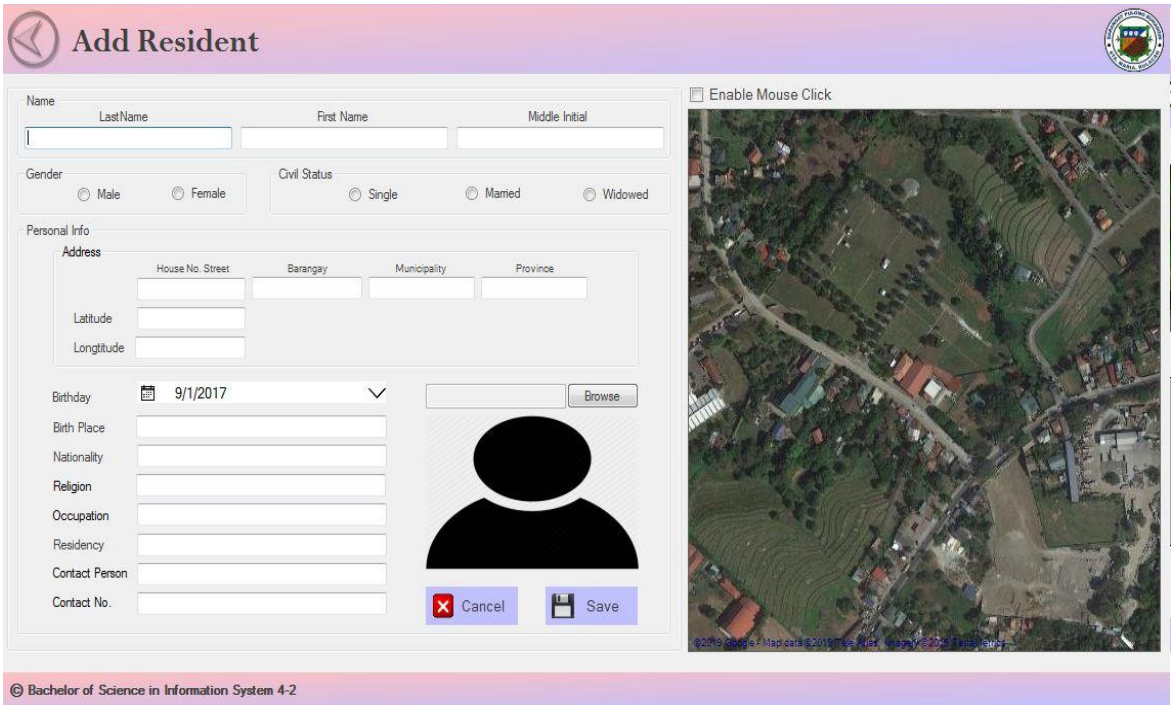

*Figure8.*Blotter Reports Interface

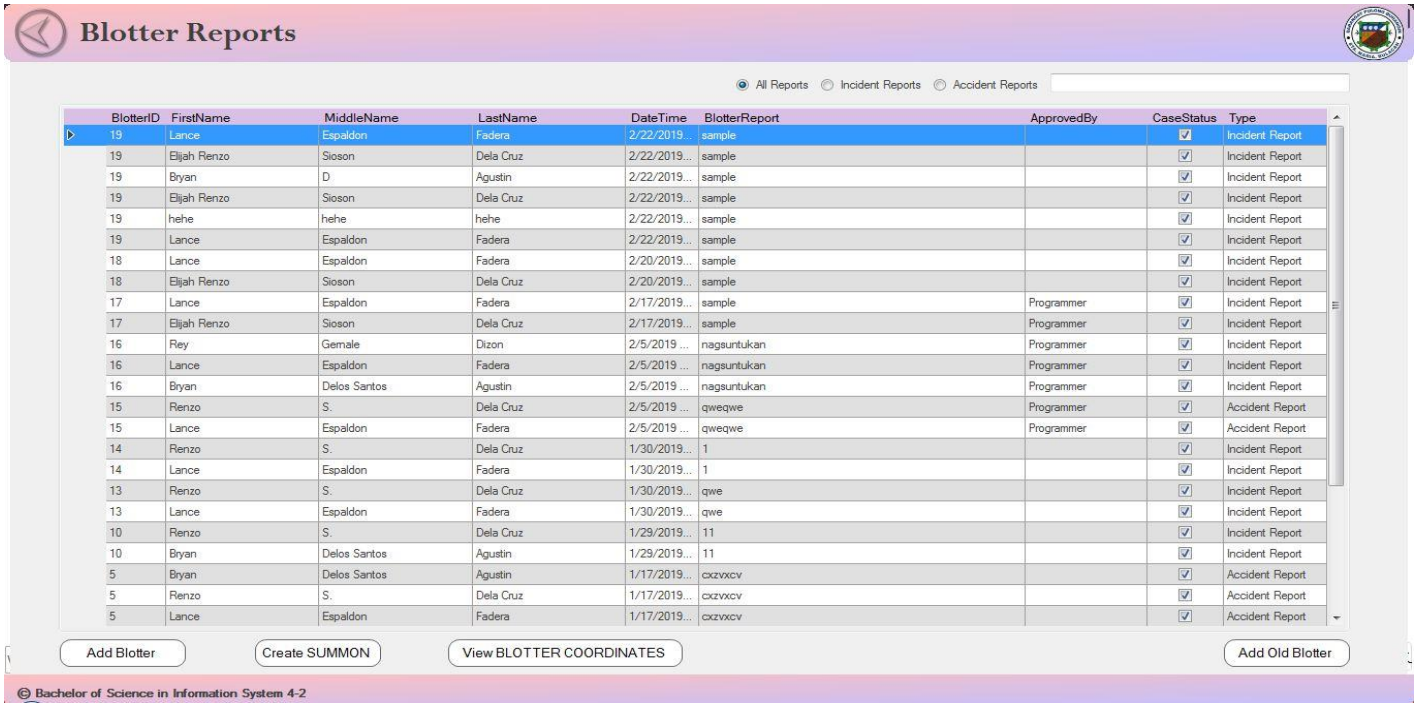

*Figure9.*Create Summon

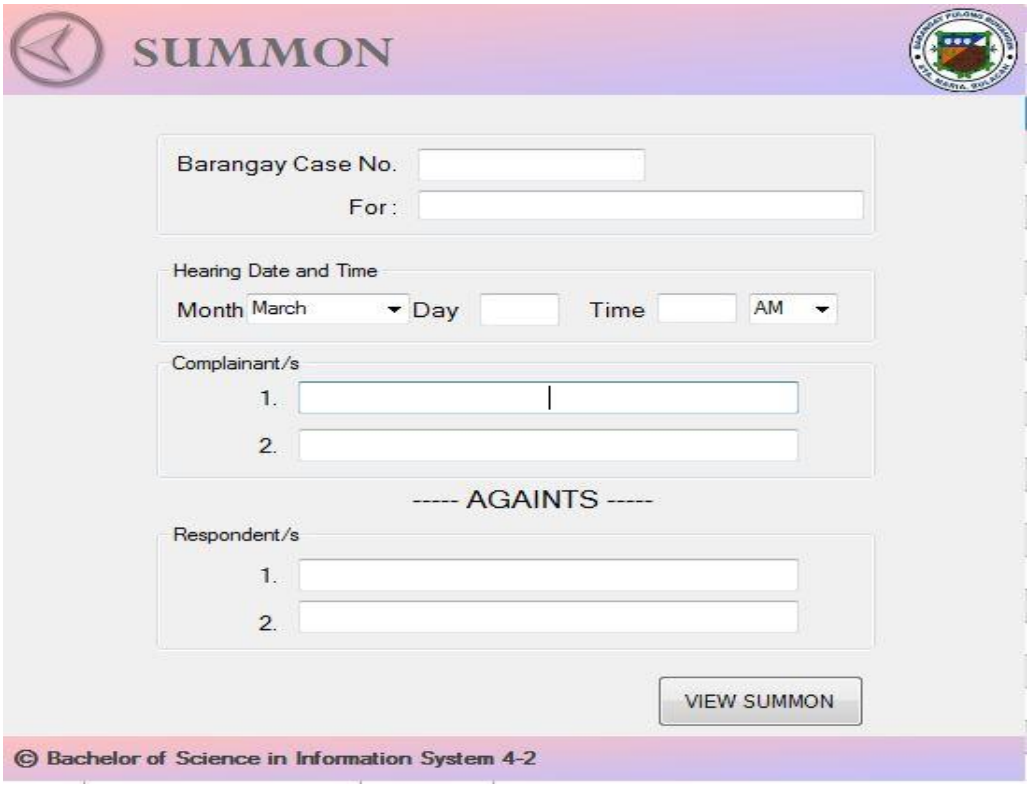

*Figure10.*View Blotter Coordinates (GMAP Coordinates)