STUDENT NOTIFICATION ALERT SYSTEM

A Capstone Project Presented to

The Faculty of the College of Computing and Information Sciences

SAINT MICHAEL COLLEGE OF CARAGA

Nasipit, Agusan del Norte

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Of the Requirements for the Degree

BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY

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APPROVAL SHEET

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ABSTRACT

The Student Notification Alert System (SNAS) is a web-based tool that allows students at Saint Michael College of Caraga to receive important news and events via SMS. Without connecting to the Internet, the system can send mass SMS messages, read student responses, and respond to their questions. The system might record students' information.

The academics will benefit from this research as a real-time SMS alert. The school can use SMS to send out announcements to available online or offline pupils. We've turned to mass notification to keep students' relationships with the school and personnel. The majority of pupils are in a situation where getting access to the Internet is difficult. Creating announcements during a pandemic is a significant element for those students who cannot leave their homes.

ACKNOWLEDGEMENT

The system took a long time, a lot of money, and a lot of effort to finish. Many others have lent their support, guidance, and encouragement to them. First and foremost, the researchers wish to thank God for providing them with strength and might. They'd also like to thank their parents for constantly pushing, encouraging, and assisting them in finishing this endeavor.

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CHAPTER I

INTRODUCTION

Project Context

The mobile unit presents as a vital part of a persons' daily life used for communication and provides heterogeneous pieces of information. The utilization of transferrable is not restricted to communication alone but presents for the subscription to additional services like disaster warning, alert systems, and notifications. Today's technology growth for communication became the most significant to folks globally [1]. Folks these days put confidence in technologies and communication resulting in everyday life [2].

Spreading announcements is one of the problems in the school. The school only approaches the students by mail notification and social media pages. The problem is that the students do not spend much time online due to the slow internet connection. During the time of a pandemic, creating announcements is a huge factor for those students that are not able to step out and remain at home. We have turned to spread notification to maintain the school and personnel's relationship. Most students are at a location where having an internet connection is challenging.

Educational establishments must increase their services through mobile phones by providing easy access to data to students, teachers, and folks [1]. The implication for a positive social change in rising public policy is to create enrollment for emergency text alert programs obligatory to help and save lives at schools and universities [3]. The learner support can be a system designed to assist the learner. To use the study materials offered to him/her for studying effectively and efficiently and be in an exceedingly position to manage their lifestyles thus they can complete the course. It points at decreasing the segregation of a distance learner in increasing peer and educator interaction, inculcating self-discipline among the students, and avoiding lost interest [4]. This project will benefit

the students and the lecturers. No students' square measure left not knowing the school announcements and necessary events.

Purpose and Description

The Student Notification Alert System (SNAS) is a web-based application built to provide alerts for Saint Michael College of Caraga students about announcements and important events. The positive fact of this project is students no longer have to check online platforms to know if there will be upcoming events and activities in school. There is no project like this within the school centered on serving students on disseminating announcements of school activities and events offline.

Objective of the Study

This study aimed to develop a Student Notification Alert System for Saint Michael College of Caraga.

Specifically, it aimed to:

1. Notify the students, most especially the offline students, regarding dynamic events and announcements
2. Receive and read messages coming from the students.
3. Reply to concerns from the students through SMS.

Scope and Limitation of the Study

This system will help as a real-time SMS alert to the scholars to outreach offline students. Using SMS, the school can disseminate announcements comfortable to students online or offline availability. One of the system's key features is that the admin can read and reply to message concerns from students. Students and admin/staff should be the system's users. Other users who wish to use the system must first register as members or admin. Only SMCC students will be able to fill out the registration form. A notification will only send to those who have registered. The system can only handle a maximum of 160 characters for sending text messages. The students ' responses should not contain any emojis because the system does not read emojis.

Risk and Opportunities

The risk would be that the student's location is out of the coverage area might be impossible for the system to reach. The laziness of students ignores the notification on their mobile phones. The school does not have a current system before students' involvement. With this methodology, it is an opportunity to possess a replacement system among the college of SMCC for simple means of approaching students with the required events various announcements. It's not only convenient to students but together to the lecturers that do not want any of their students to be left inadvertently regarding the school's event.

Definition of Terms

Bulk SMS – a large amount of SMS that will send to all the students of SMCC.

Global System for Mobile Communications (GSM) – is a modem modern cellular network. The hardware is going to be employed by the researchers to deliver the messages.

SIM (Subscriber Identification Module) - is a microchip in a mobile phone that connects it to a particular phone network of students. The researchers need this hardware to connect to student's mobile SIMs.

SMS (Short Message Service) – It is a sending electronic application. Sends messages and receives conversations between the staff and students of SMCC.

CHAPTER II

REVIEW OF RELATED LITERATURE

This chapter presents a brief overview of the review literature and related system of the study to conform to the project variables.

Developing a Mobile Notification System for Al Buraimi University College Students

In this day and age, quite possibly the most well-known application in portable innovation is the short message administration (SMS). Because of its significance, this examination is mainly worried about a versatile warning instrument dependent on SMS, expecting to improve the blended learning strategy for undergrad distance students. As needs are, this apparatus includes an incredible effect decreasing the difficulties that understudies may look at in learning and helps them to accomplish their learning results. The fundamental target created device is to work with the correspondence between the understudies and their educators through the warning utility. All of the understudies' gatherings showed interest in getting the instructive substance employing SMS [5].

Alert notification via SMS (Short Message System)

SMS allows users to send and receive a short message. This project purposed to enhance the features of SMS because SMS can be obtained from a mobile phone and can send from a personal computer. The project provides means to those related to it and the researcher to gain SMS benefits. These projects enable SMS to send from personal computers to mobile phones. It will reflect from this project that someone who cannot use a computer and mobile phone or does not know how to use a personal computer can benefit from this project [2].

Mobile phone messaging to increase communication and collaboration within the university community

This paper shares a lecturer's viewpoint on using mobile phone messaging tools to increase cooperation and collaboration with students and the broader university community. One hundred forty-five undergraduate students from a Caribbean university questioned how often they check their mobile phones for text/voice messages per day and when they turn off their mobile phones. Of the 145 participants in this research, 66.84% never turned off their phones during the week and carried their phones everywhere, including classrooms. Lecturers and university administrators can now consider how mobile phone messages tools can be used [6].

Parent Alert System (PAS) Via SMS

Poor education is one of the crime reasons in Malaysia. The study aims to design a web-based attendance system to help teachers and parents control students' absences. The teachers in high schools introduced the Parent Alert System (PAS) prototype. The plan covers two main functionalities: The first function is to get the attendance information of the students and the second one is to send SMS to the parents if their son/daughter is absent from alerting them. The t-test results indicate no statistically significant difference in the mean Usefulness, Outcome, Future Use, and Ease of Use on the two groups [7].

School Event Notification through SMS

Mobile phones are now considered an essential part of people's daily lives used for communication and providing diversified information. The use of the mobile phone is not only limited to transmission alone. Still, it is for the subscription to value-added services like disaster warnings, alert systems, and notifications. School Event Notification through SMS (SENT SMS)

benefits students, teachers, and parents. Notify the students of the school's upcoming events, changes in the schedule, and suspension of classes due to bad weather. Parents will also be informed about the school activities and be aware of their children in school. The system was tested and evaluated using ISO 9126 standard questionnaire for functionality, reliability, usability, efficiency, maintainability, and portability [1].

The SMS based content alert system

All mobile telephone users widely use the short Message Service (SMS). This study seeks to follow up an original pilot project conducted by the University of Swaziland and Emerald Group Publishing. The major limitation was the manual transmission of the SMS, which needed to be automated. The alerts were dependent on the effective e-mail-based alerts provided by the publishers. It proves that a successful SMS-based alert service can be implemented using SMS messaging and can potentially market library services to its patrons successfully, says the study. The researchers conducted the research at Bundelkhand University, Jhansi, India, based on the prototype suggested in the pilot project [8].

SMS Based Student Services Administration

Utilizing Brief Message administrations (SMS) for different applications has expanded essentially. There's still one region where these administrations have not used the correct potential within academics. Although it has the most extensive reach of all the technologies within the college campus, it is still exceptionally much underutilized within the understudy administration's administration. This paper investigates the assessment of SMS-based applications for understudy administration organizations and proposes an approach to executing these applications. The submitted applications incorporate utilize of Brief Message Administrations by instructive

establishing for Data Spread, Caution administrations, and Information On-demand administrations for understudies [9].

Acceptance of SMS Text Information Usage among College Students

Short Message Service (SMS) Text Messaging has become popular as mobile devices increased tremendously in recent years. A survey on Intl College students indicated a high acceptance of SMS usage. Writers say six services that people could incorporate into SMS text notification to enhance the effectiveness and efficiency of communication in a college environment. The writers suggest that they ensure efficient dissemination of information for intended recipients [10].

An Alert Grading System for School by Using SMS

They need to strengthen their children with a high level of education. Parents need to keep track and be aware of how well their children perform in the learning process. The objective of this study is to develop a prototype of an alert grading system. The system is an alert system with Short Message Services (SMS), which acts as a medium to alert parents about students' performance in the trial exam of Sijil Pelajaran Malaysia (SPM). This project aims to increase parents' awareness of students' achievement in the learning process and their children's performance. It will contribute to the development of the education field and help parents in the education field. [11].

Web-based Notification Management System with Android Application

It advanced mobile phones for calling today we use them more for social exercises like WhatsApp, Facebook, climb, etc. So innovation approaches us, we should use them for our significant reason. Following these considerations, we built up this framework. Administrating precise and forward-thinking data regarding an understudy's scholarly profession is a troublesome

and tedious undertaking for the schools. These days it gave the data to guardians regarding their ward through postcards, SMS, or mail, yet these procedures are furious wasteful and extensive [12].

Auto Notification Service for the Student Record Retrieval System Using Short Message Service (SMS)

Web advancement in worldwide information has taken numerous steps to strengthen its data frameworks internally and remotely. It centered knowledge-sharing activities, and cultivated broader worldwide knowledge-sharing activities, all in support of upgrading the internet advancement and its partners' and clients' get to and sharing of thoughts. Most colleges have websites; these websites have joined. Its substance of information of an understudy such as examination comes about, which is not sufficient to appear or give all the required information. Researchers presented the Student Record Recovery Framework (SRRS) to overcome the over-specified issue. In this paper, a new proposed framework upgrade to the part of the teacher in SRRS is displayed to be more instructive to the understudy. The enhancement to the framework pointed to permit the speaker to pass more data to the understudy utilizing auto notice of short message benefit depending on portable phone for each understudy [13].

SMS Communication and Announcement Classification in Managed Learning Environments

A model framework for sending SMS messages to students tells them approximately the outlined and partially implemented declarations. Researchers performed tests to test whether programmed text classification can utilize to choose which assertions posted by mentors are urgent. Mentors should send an SMS content message educating understudies. The accuracy of a naive

Bayes classifier isn't adequate in itself to choose this, but a flexible classifier and the capacity of guides to abrogate its choices has promise. How people would utilize the framework would depend on administration policies concerning the impacts of classification blunders [14].

Utilization of Short Message Services (SMS) for Library Notification System

Examine the current benefit of library notice in the University of Malay library. When accepting library notification benefits, recognize issues, issues, and difficulties library supporters face. 72% of respondents confront issues regarding returning books they borrowed from the library notification. The discoveries demonstrate several shortcomings within the existing mail notification system. The study aims to examine the current benefits of a library notification system in UM's library [15].

A Proposed Framework of Campus-Oriented Online Text Messaging System

The fast progression of versatile computer program improvement has activated to rise of more online content informing applications. In the environment of higher instruction education, it is additionally broadly utilized to support the communication handle between campus individuals. This investigation proposed a system of campus-specific online content informing the anticipated progress of academic exercises. The framework comprises three fundamental subsystems, including Client Application, Server Application, and Thrust Notice Director. The user fulfillment test results appear that most clients consisting of instructors, staff, administration agents, and understudies felt more made a difference within the communication process in the campus environment [16].

Result Alert System through SMS and E-mail

With the coming of portable arranged communication framework, clients have been advertised parts of services such as the capacity to send mixed media messages like SMS, Video, Information records, Pictures, e.t.c. This paper depicts the design and usage of a framework (Result Caution Framework) that helpfully gives examination come about to students with the utilize of E-mail and SMS innovation using their Versatile phones and devices. Mobile phones and gadgets are essential resources, most notably to understudies, because it makes communication and the spread of data a parcel simpler. Result Alarm Framework takes advantage of a few innovations that Mobile devices give, such as the Mail and Brief Message Benefit (SMS). The actualized system allows enlisted understudies to get to their comes about, counting past comes about, given they are accessible in the system's database. [16]

Exploring the determinants of college students' adoption of mobile-based text alerts short message service

This study tried to investigate the determinants of understudies' appropriation of portable-based text-based notification short message administration (SMS). The investigation's discoveries upheld the essential contention of the model that people's selection of text-based notification SMS for crisis readiness and reaction ought to be generally controlled by friendly mental components, for example, disposition toward, abstract standard related with, and saw rudeness of the SMS. Likewise, the discoveries exhibited that emotional measure of and mentality toward the assistance provoked people's actual selection though meddling of the help filled in as an unmistakable hindrance to the actual reception conduct. At last, the discoveries also showed that the place did not straightforwardly expand the likelihood of receiving the text-based notification SMS by seeing the convenience and seeing the help's value. However, it was a roundabout way influenced by the two precursors through

ones' disposition toward the utilization of the SMS. Hypothetical and pragmatic ramifications of the discoveries talked about [17].

Usability and Adoption of an Optimized Alert Notification System

In the wake of emergency circumstances that can bring misfortune through the deficiency of human existence, or the staggering obliteration of homes or structures, individuals start to perceive the requirement for better cycles and further developed frameworks. Emergency and crisis notice frameworks that use the proper correspondence channels can rapidly scatter alarms and data both during and after an emergency. The achievement of these frameworks connects to our general public's pattern of creating further developed electronic gadgets that permit clients to remain associated and get data quicker than any time in recent memory. Individuals should convey various devices, tablets, and cell phones. As anyone might expect, current crisis correspondence frameworks presently use the two SMS messages and calls. The latest update to alarm frameworks has incorporated the reception of a standard convention for steady alarm message scattering over various correspondence channels with the Regular Cautioning Convention (CAP) [18].

Smart Pigeonhole Alert System with SMS Notification

Most organizations are obsolete in overseeing data utilizing conventional pigeonholes as message boxes for each part to track staff approaching and outgoing sends. People experienced a few challenges due to the misfortune of important sends, untimely delivery, affirmation of approaching sends, and late input. This paper proposes a versatile pigeonhole alarm framework employing a sensor gadget to send an alarm to the intended pigeonhole clients, informing them of the entry of a message and the need for reasonable criticism [19].

Social Coordination in the Age of Smartphones and Messaging Apps

This paper analyzes how versatile informing apps have changed how individuals micro coordinate. It is based on five center bunches of youthful grown-ups in Singapore and Taiwan. Initially, micro coordination more often than not expected dyadic interaction utilizing either SMS or portable voice calls. Progressively, interceded communication employments versatile informing apps that permit multisided intuition that encourage task-based chat bunches. Bunches are effortlessly shaped but can be troublesome to oversee. This paper progresses our understanding of micro coordination through informing apps. Mainly, it gives experiences into the double parts of instrumental and expressive interaction fundamentally to the working of these informing bunches, ambient-mediated within the shape of promptly accessible communication accomplices in batches, and the development of meme-based coordination. [20].

CHAPTER III

TECHNICAL BACKGROUND

This chapter includes an in-depth discussion on the relevant technical aspects of the system

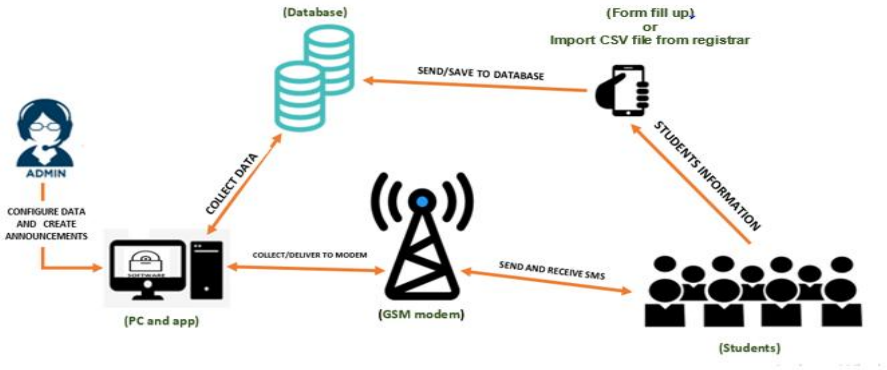

Figure 1. System Architecture

architecture and the detailed illustration of both hardware and software requirements.

Figure 1 illustrates how the administrator will log in as the admin can configure all data in the database. Students will send their information through a form. The Headteacher will subscribe to the SIM. The Sim will be put inside the GSM modem and connected to the student's network.

Figure 2. Context-level Data Flow Diagram

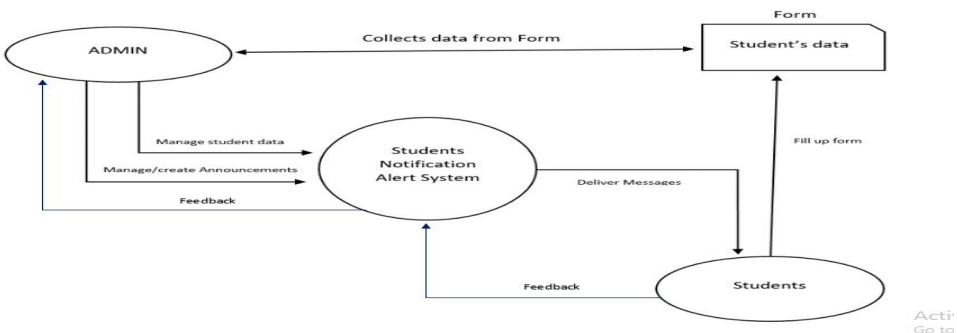

Figure 2 describes that the administrator is the only one who can make and create announcements and also input data of the students from the forms. Students fill up a form with their information online or through any form like logbooks and papers. Then the admin can gather those data and put it into the system.

Software Requirements

The software requirements table shows an in-depth discussion on the relevant illustration of the software used in this project. This table shows all specifications of the required software.

Table 1

Software Requirements

COMPONENTS	SPECIFICATION	USAGE
Operating System	Linux	Linux-based is an open-source Unix that operates a part of the Internet and operates large and small networks in companies, offices, and private homes. Linux is stable, secure, and robust, making it ideal for storing significant databases.
	CSS HTML	CSS is the language for describing the website's presentation, together with colors, layout, and fonts. It permits one to adapt the presentation to different devices, like giant screens or printers. The software system was utilized by the researchers to describe the website's look. However, markup language parts are displayed on the screen, on paper, or in alternative media.

Front End	JavaScript	JavaScript could be a text-based artificial language used on the client-side and server-side that enables web content additional interactive. JavaScript is going to be utilized by the researchers to program the system. An electronic text terminology. A reliable framework for labeling content records to realize textual style, color, realistic, and connect impacts on the World Wide net. This software goes to be used by the researchers to line up the pc program of the system.
Back End	PHP MySQL Kannel Gateway	PHP is an open-source server-side scripting language. MySQL information Service may be a managed information service to deploy cloud-native applications. This computer code goes to be used by the researchers attributable to the system. Kannel's primary use is to connect HTTP-based services to various SMS centers using ambiguous protocols. WAP stands for Wireless Application Protocol, a collection and infrastructure of languages and tools for implementing mobile phone services.
Server	Ubuntu Apache	The Apache web server is a software package that turns your computer into an HTTP server. Send web pages saved as HTML files to people on the Internet who request them. It is open-source software, so you can

		use and modify it.

Table 1 shows all the software needed in the development of the system.

Hardware Requirements

This table includes all required hardware instruments for developing this project. It shows all the specifications and usage of the hardware.

Table 2

Hardware Requirements

COMPONENTS	SPECIFICATION	USAGE
PC/laptop	RAM(8gb) Processor (Intel COREi3) HDD(1000GB) USB Cable(USB 5v-12v connector)	A personal computer (PC) may be a multi-purpose pc whose size, capabilities, and value create it possible for individual use. Ram is a kind of memory module. RAM (random-access memory) is an equipment gadget that permits data to be put away and recovered on a computer. A processor is a coordinated electronic circuit that plays out the computer's figuring that runs. A non-volatile memory hardware device. Stores and retrieves knowledge on a laptop/computer. The hardware researchers used in the study is vital to running the

		software. A USB port is a standard cable connection interface for computers and customer hardware gadgets. USB represents Widespread Sequential Transport, an industry standard for brief distance advanced information interchanges.
GSM Modem	GSM Modem Single Port Q24Plus	A GSM modem is a specific modem that, like a mobile phone, accepts a SIM card and works with a mobile operator's subscription. A GSM modem appears to be a mobile operator identical to a mobile phone.
SIM Card	GLOBE/TM TNT/SMART	The subscriber identity module (SIM) is a smart card that holds identity information that identifies a device belonging to a particular mobile network. Username, location, phone number, network authorization records, personal security keys, contact lists, and saved text messages are all stored on SIM cards.

CHAPTER IV

METHODOLOGY

In this chapter, the researchers introduces the system's methods. The layout and improvement of the system indicate the interplay of the administrator.

Design and Development

The design and development process defines the system's components, interfaces, and data required.

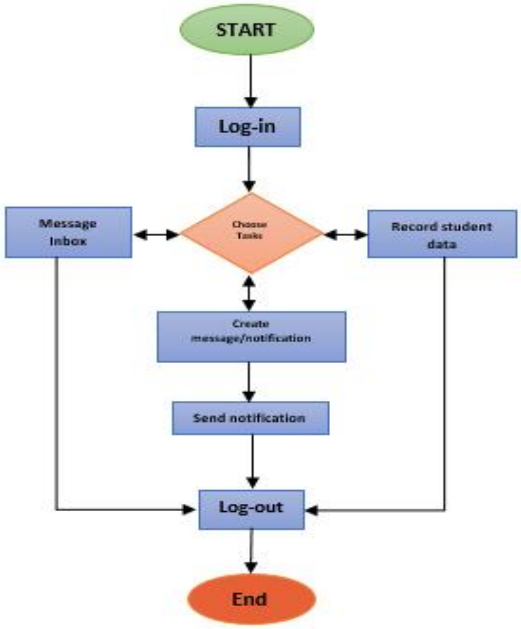

Figure 3. Admin activity diagram

In Figure 3, the activity diagram portrays the flow and the activity of the specified personnel who use the system. To start, the administrator will log in and bring it to the homepage interface. The admin can choose whether the administrator would create a message/notification, read/reply to students, and record students' data.

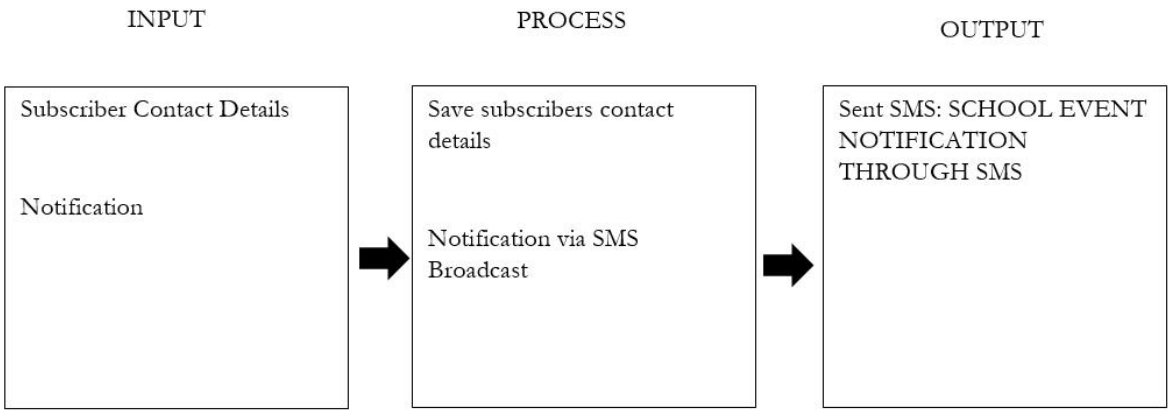

Figure 4. Conceptual Framework

Figure 4 shows the study's conceptual framework, illustrating the flow of the proposed system. As seen in the image, the significant input is the subscribers' contact information, in addition to their mobile number. The mobile phone number is required and entered into the system and get SMS notifications. Another input is notification alerts, which comprise school notifications and messages published to subscribers. The admin saved the subscriber's contact information in the data storage application, and an SMS notification method will sends the SMS to the subscriber's mobile phone number.

Graphical User Interface Discussion

The GUI (Graphical User Interface) is a system of interactive visual components for computer software. A GUI displays objects conveying information and representing actions that the user can take.

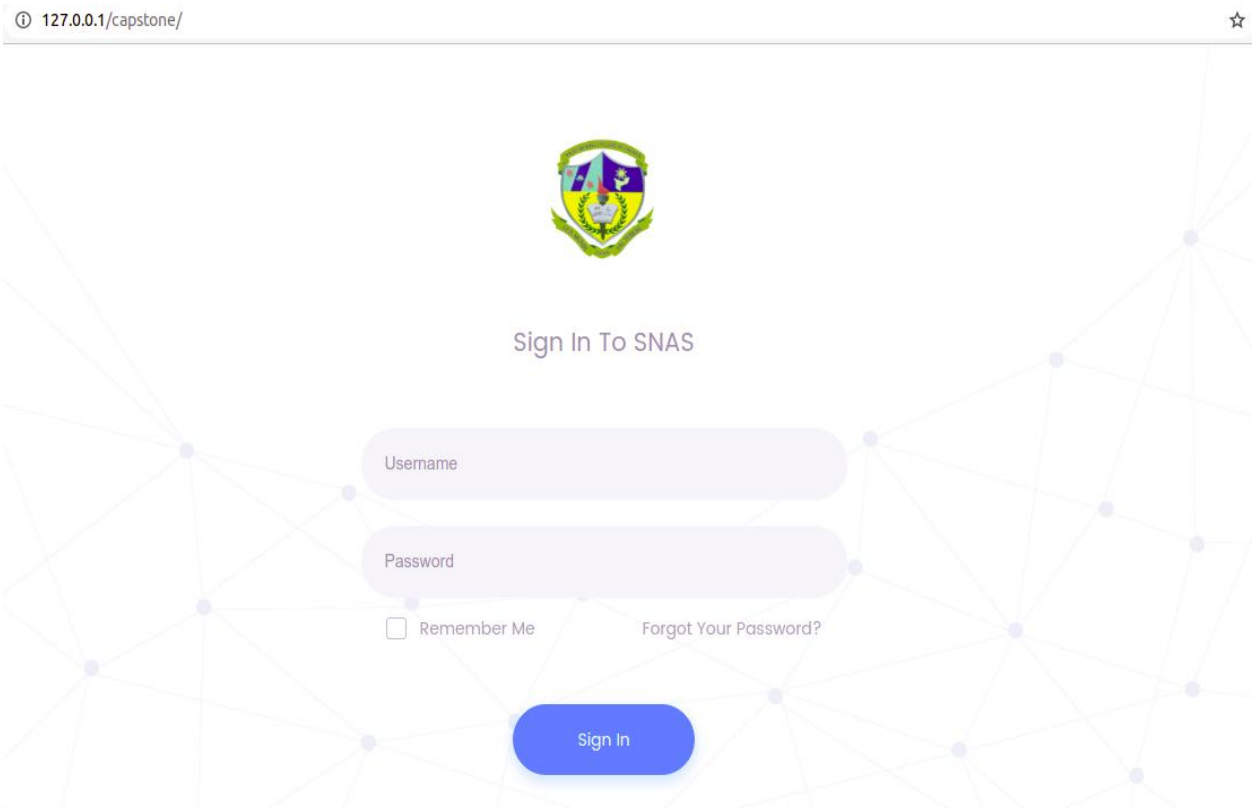

Figure 5 shows the Login Interface shows the introduction design of the project consisting of username and password input fields. The administrator has already created the admin account, and only the authorized personnel have the username and the password. Use the report and press the button "Login" to interact and use the system.

Figure 5. Login page interface

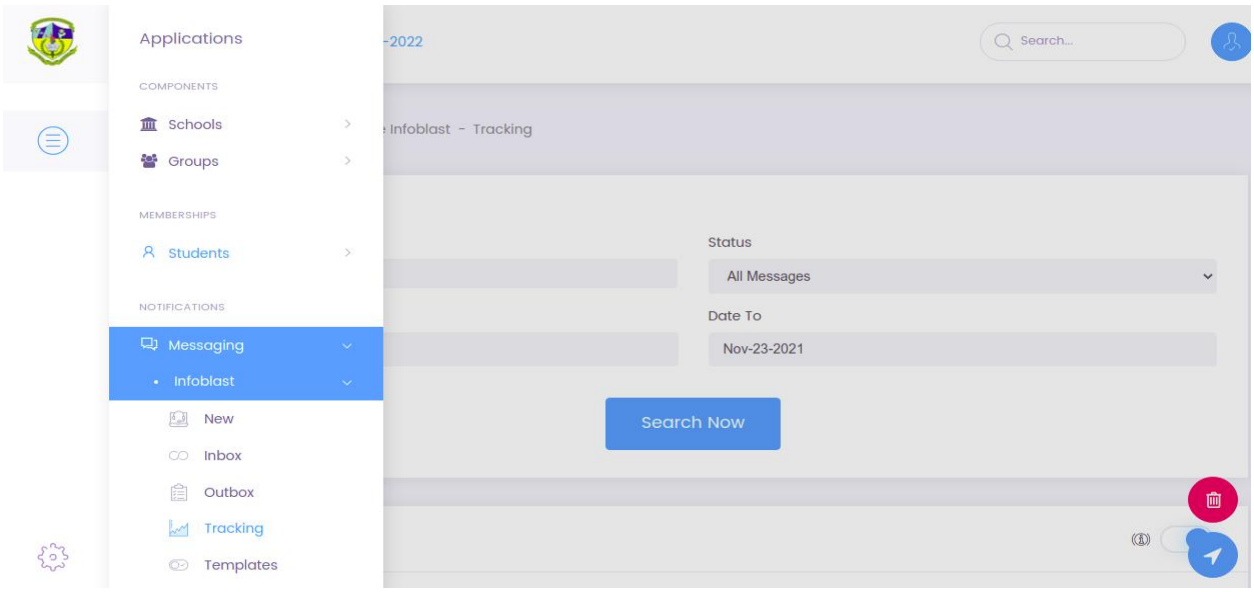

Figure 6. Navigation bar interface

Figure 6 shows the user will see three navigation bars leading to its pages and function. The user can navigate what page to choose for a specific task.

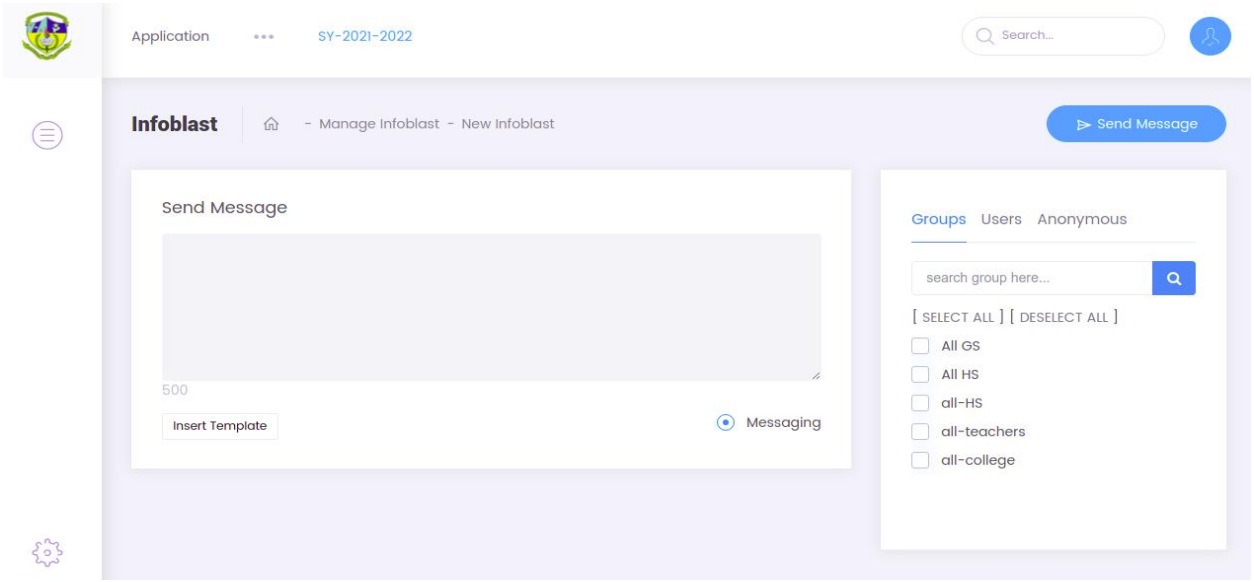

Figure 7. Home page interface

Figure 7 displays the interface of the home page of the system. The admin can create the message in the message box on the homepage and select recipients. After completing the news, the admin can interact by pressing the send button to send the created message. The admin can log out of the system in the upper right corner. Home page interface

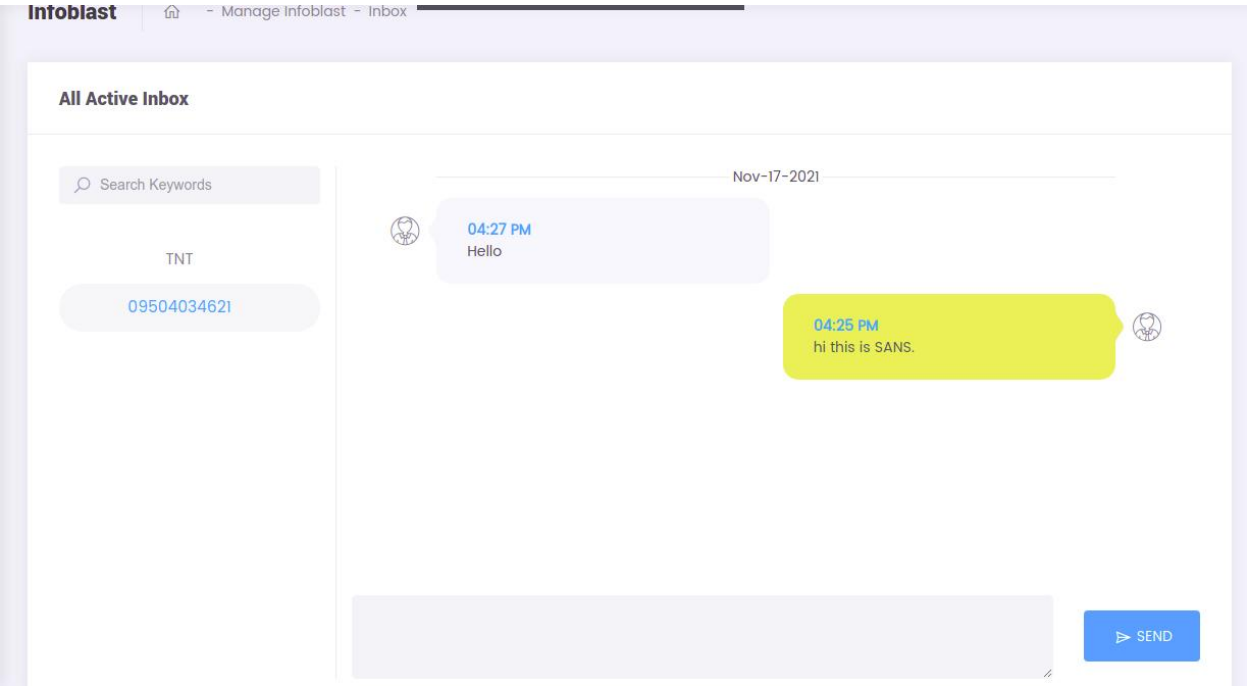

Figure 8 Inbox page interface

Figure 8 shows the inbox page where messages and numbers of the senders received from the students. The received messages are placed in the box to be read by the administrator. The administrator can also reply to the system's messages in this interface.

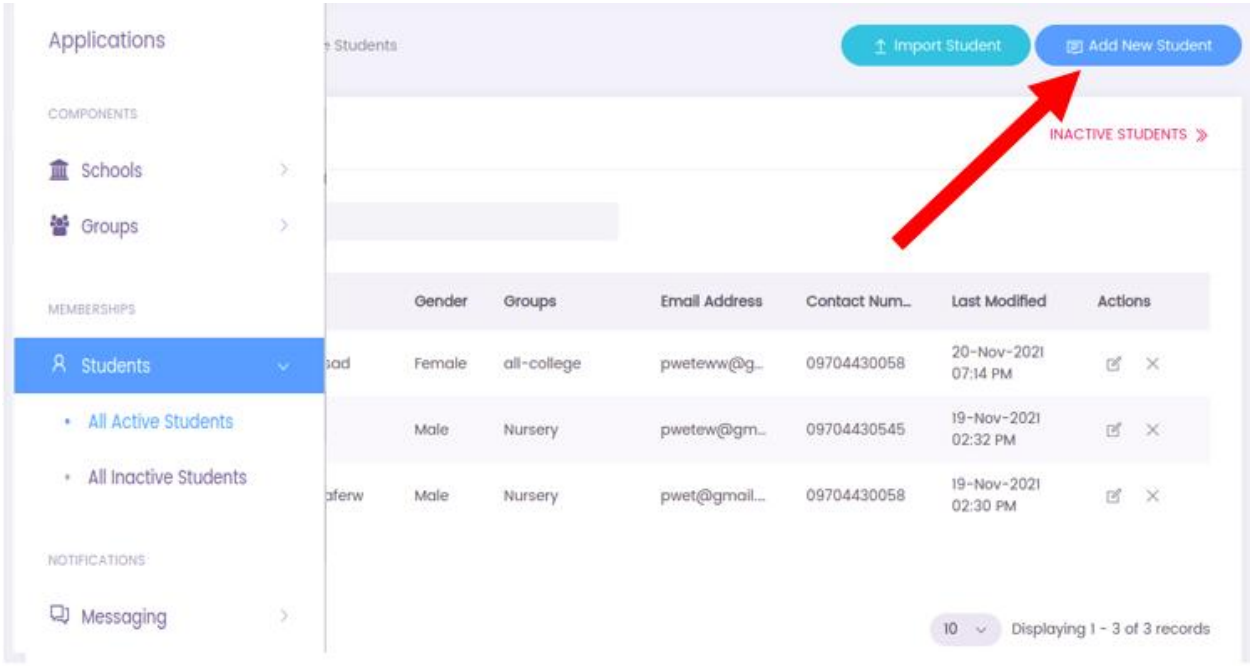

Figure 9. Register Interface p1

Figure 9 shows the arrow where the admin can add new students and prompt another interface.

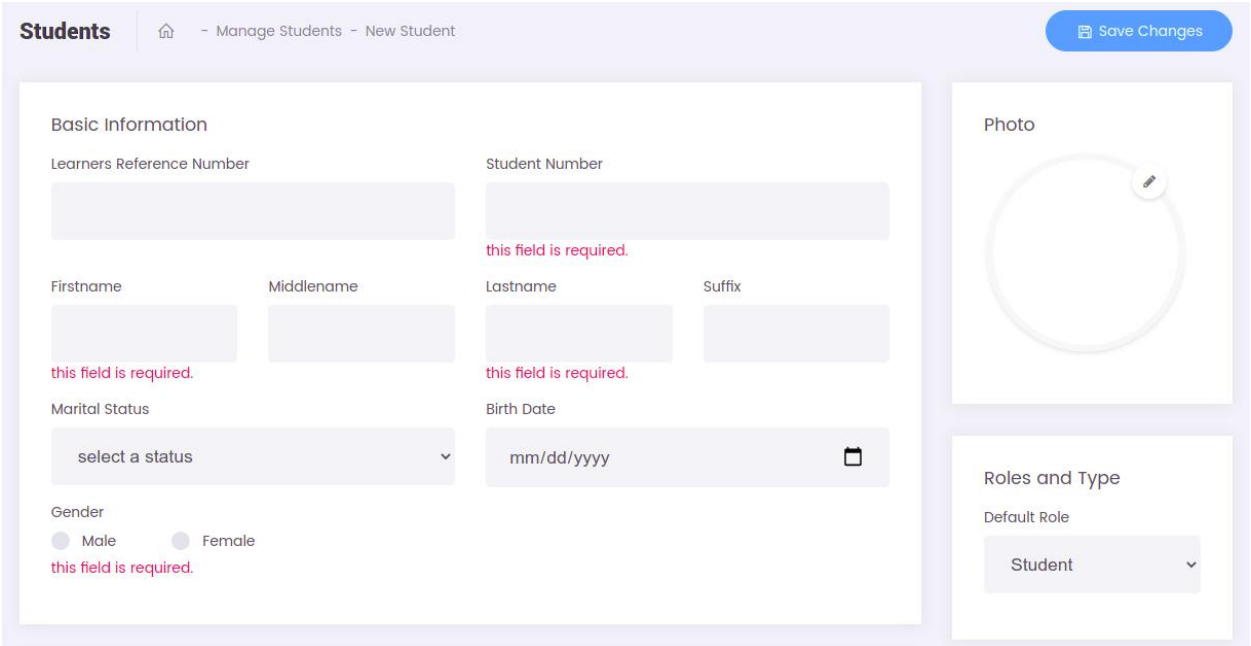

Figure 10. Register Interface p2

Figure 10 shows all the required fields to fill up to save students' information and students' data.

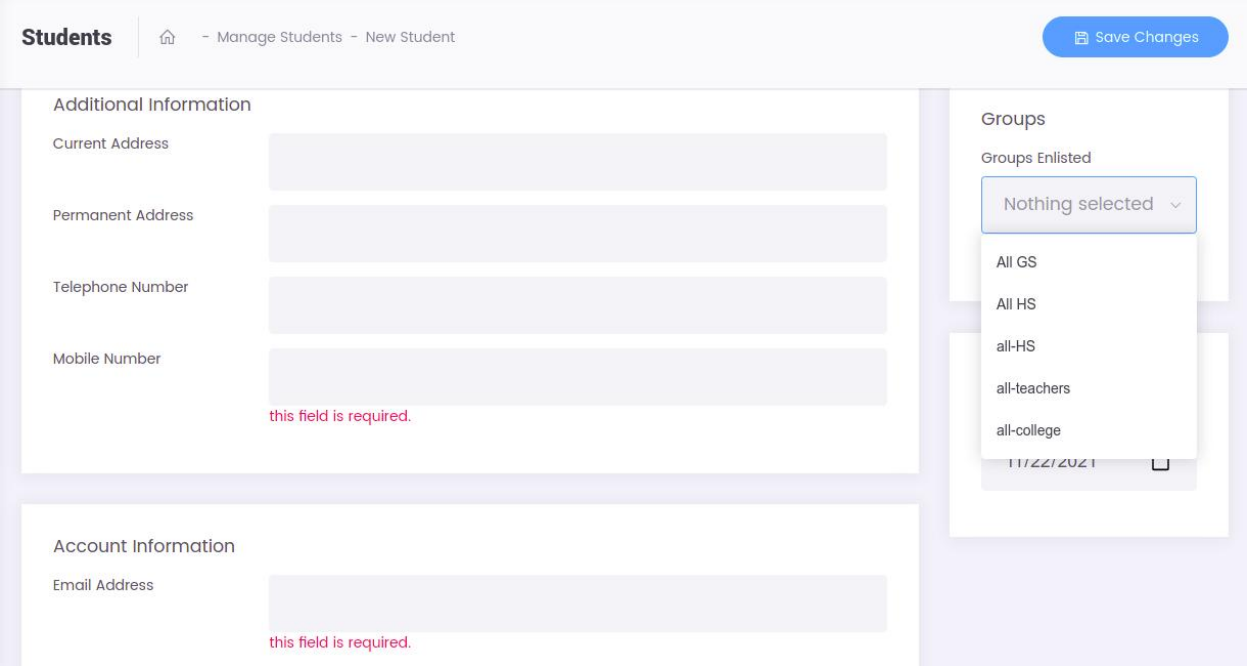

Figure 11. Register Interface p3

Figure 11 shows all the required fields to fill up in order to save students information and students data.

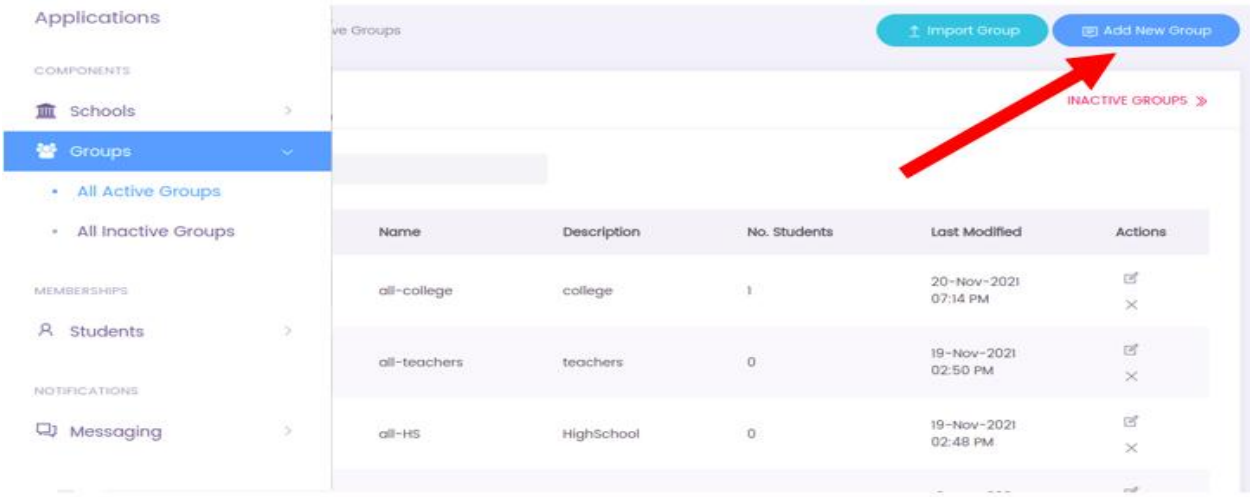

Figure 12. Create Group Interface p1

In figure 12, it shows the red arrow leading to creating a new group and directs you to another interface where the user can fill the needed fields.

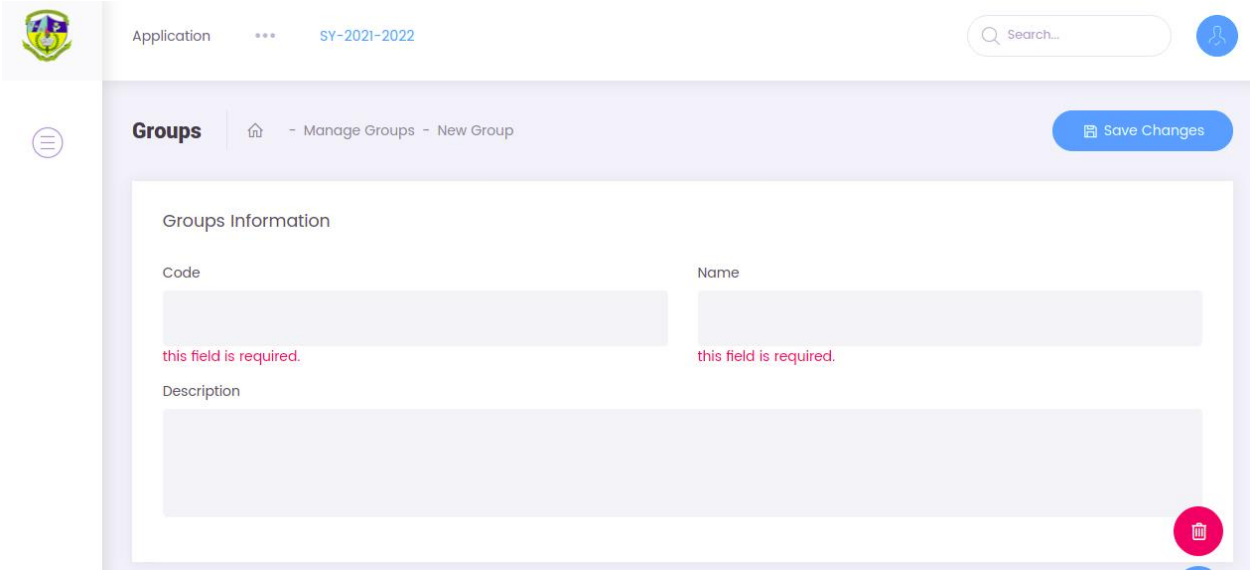

Figure 13.Create Group Interface p2

Figure 13 shows the required field in creating new names of groups. The admin can create new groups.

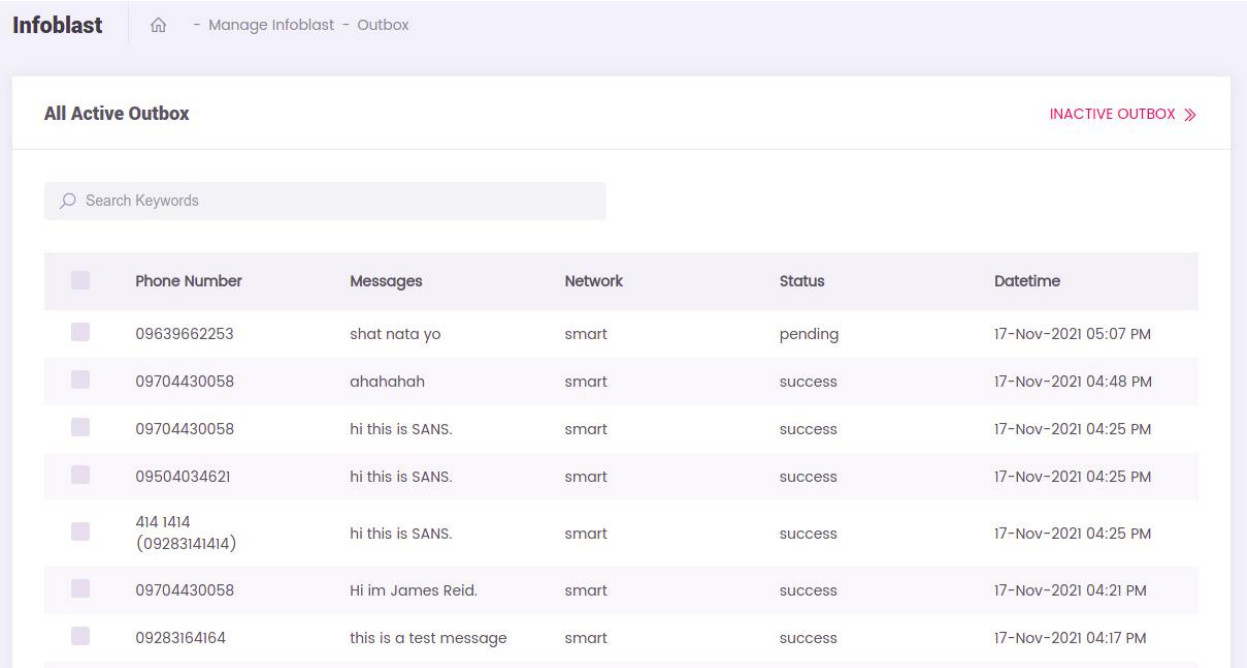

Figure 14. Outbox Interface

Figure 14 shows the outbox page. On this page, the admin can determine whether the admin sent the message or not. The status says success if it was sent, while on the other hand, it shows pending and the statement did not send.

Code Discussion

This part shows all the essential codes for developing the system. Each code represents all its functions on every page of the system.

```
public function send(Request $request)
{
    $timestamp = date('Y-m-d H:i:s');
    $recipients = array(); $userx = array();

    $message = Message::create([
        'message_type_id' => $request->message_type_id,
        'messages' => $request->messages,
        'created_at' => $timestamp,
        'created_by' => Auth::user()->id
    ]);

    if (!$message) {
        throw new NotFoundHttpException();
    }

    if (!empty($request->groups)) {
        foreach ($request->groups as $group) {
            $groupUsers = GroupUser::where(['is_active' => 1, 'group_id' => $group, 'batch_id' => (new Batch)->get_current_batch()])->get();

            if ($groupUsers->count() > 0) {
                foreach ($groupUsers as $groupUser) {
                    $userx[] = $groupUser->users_id;
                }
            }
        }
    }

    if (!empty($request->users)) {
        $users = explode(',', $request->users);
        foreach ($users as $user) {
            $userx[] = $user;
        }
    }

    if (!empty($request->anonymous)) {
        foreach ($request->anonymous as $mobileNum) {
            $recipients[] = $mobileNum;
        }
    }

    $queue = $this->new_queue_message($message, $recipients, $userx, $timestamp);

    if ($queue) {
        $data = array(
            'message_type_id' => $request->message_type_id,
            'messages' => $request->messages,
            'groups' => $request->groups,
            'sections' => $request->sections,
            'users' => $request->users,
            'anonymous' => $request->anonymous,
            'title' => 'Well done!',
            'text' => 'The messages has been successfully sent.',
            'type' => 'success',
            'class' => 'btn-brand'
        );

        echo json_encode( $data ); exit();
    }
}
```

Figure 15. Send SMS Code

Figure 15 shows the send function of the system. There are three choices the group sends, the user sends, and the anonymous send function. The system will fetch the message that the user will create and send the messages to the administrator's group of choice.

```php
public function store(Request $request)
{
    $this->is_permitted(0);
    $timestamp = date('Y-m-d H:i:s');
    $batch_id = Batch::where('is_active','1')->where('status','Current')->pluck('id');

    $group = Group::create([
        'code' => $request->code,
        'name' => $request->name,
        'description' => $request->description,
        'created_at' => $timestamp,
        'created_by' => Auth::user()->id
    ]);

    if (!$group) {
        throw new NotFoundHttpException();
    }

    $auditLogs = AuditLog::create([
        'entity' => 'groups',
        'entity_id' => $group->id,
        'description' => 'has inserted a new group.',
        'data' => json_encode(Group::find($group->id)),
        'created_at' => $timestamp,
        'created_by' => Auth::user()->id
    ]);

    $data = array(
        'group_id' => $group->id,
        'title' => 'Well done!',
        'text' => 'The group has been successfully saved.',
        'type' => 'success',
        'class' => 'btn-brand'
    );

    echo json_encode( $data ); exit();
}
```

Figure 16. Create group code

Figure 16 show the code for creating and registering a new user as $member to a specific group. The administrator does all the actions.

```php
public function add_users(Request $request, $id)
{
    $timestamp = date('Y-m-d H:i:s');
    $batch =  (new Batch)->get_current_batch();

    $members = explode(',', $request->memberz);
    foreach ($members as $member) {
        $groupUserx = GroupUser::where([
            'group_id' => $id,
            'batch_id' => $batch,
            'users_id' => $member,
        ])->get();

        if ($groupUserx->count() > 0) {
            $exist = $groupUserx->first();
            $groupUserx = GroupUser::find($exist->id);
            $groupUserx->updated_at = $timestamp;
            $groupUserx->updated_by = Auth::user()->id;
            $groupUserx->is_active = 1;
            if ($groupUserx->update()) {
                $this->audit_logs('groups_users', $exist->id, 'has modified a group user.', GroupUser::find($exist->id), $timestamp, Auth::user()->id);
            }
        } else {
            $groupUserx = GroupUser::create([
                'group_id' => $id,
                'batch_id' => $batch,
                'users_id' => $member,
                'created_at' => $timestamp,
                'created_by' => Auth::user()->id
            ]);
            $this->audit_logs('groups_users', $groupUserx->id, 'has added a user on group.', GroupUser::find($groupUserx->id), $timestamp, Auth::user()->id);
        }
    }

    $data = array(
        'data' => $request->members,
        'title' => 'Well done!',
        'text' => "The user's has been successfully added.",
        'type' => 'success',
        'class' => 'btn-brand'
    );

    echo json_encode( $data ); exit();
}
```

Figure 17 shows the creation of a new group name. The admin himself does all the action.

Figure 17. Add user code

```php
<?php
# $Id: DBAccessModel.class.php,v 1.4 2007/05/03 09:31:42 altair Exp $
require_once('BaseModel.class.php');
class DBAccess extends BaseModel
{
    public $smsc;
    function save_messages($detail)
    {
        $batch = $this->get_current_sy();
        $user = trim($this->get_user_id_via_msisdn($detail['msisdn']));
        if (intval($user) > 0) {
            $details = array(
                'messages' => $detail['body'],
                'msisdn' => $detail['msisdn'],
                'smsc' => $detail['smsc'],
                'charset' => $detail['charset'],
                'status' => $detail['status'],
                'batch_id' => $batch,
                'user_id' => $user
            );
        } else {
            $details = array(
                'messages' => $detail['body'],
                'msisdn' => $detail['msisdn'],
                'smsc' => $detail['smsc'],
                'charset' => $detail['charset'],
                'status' => $detail['status'],
                'batch_id' => $batch
            );
        }

        return $this->insert('inbox', $details);
    }
```

Figure 18. Insert fetched Message to inbox code.

Figure 18 shows the code to fetch the received messages from the students input them in the inbox page to read the statements.

Testing and implementation

Table 3.

Functionality testing

Functionality Test	Success	Failed
Access the Website	✓	
Run the kannel gateway	✓	
Send SMS to group	✓	
Receive and reply messages	✓	
Register new data/ Create new group	✓	

CHAPTER V

CONCLUSION AND RECOMMENDATIONS

This chapter discusses the research conclusions and recommendations. This project is already complete, and there are a few guidelines to enhance this project in the future.

Conclusion

The Student Notification Alert System (SNAS) is a web-based system that sends SMS messages to Saint Michael College of Caraga students on school matters. It can deliver an endless number of announcements directly to pupils. They can communicate with the principal by expressing their concerns at school. By successfully receiving and transmitting messages of student concerns, the system achieves the goal of this paper. This capstone project will assist the school's EDP administrators and other stakeholders. This study paper discusses or describes our researchers' and administrative unit's efforts to execute this type of analysis suitable for our problem in this pandemic condition to meet the needs of kids and schools. The researchers concluded that the system succeeded in achieving its goal.

Recommendations

Based on the previous findings and conclusions, the researcher recommends the following courses of action.

Primary Recommendation

Using the design and development process as a foundation for constructing a similar system is a good idea because it requires fewer resources. Future researchers should conduct comparable and related studies to improve the system in the future.

Secondary Recommendations

To the Parents

The researchers suggest guardians utilizing this SNAS can quickly inform within minutes. They must be cooperative whatever the school alerts that may concern. It is not a burden to our dear parents only by replying.

To the Student

The researchers recommend students be proactive in reviewing event alerts and responding if they have comments in response to the notice. It makes it easier for them to respond to event notifications.

To the School

The researchers recommend the school if there is an announcement, the administrator will load the SIM into the GSM modem. They have not to worry if they spend an excessive load on every notification they make. They will load the SIM and register into unlimited.

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APPENDICES

A. Source Code

Removing user Functionality

```
public function remove_users(Request $request, $id)
{
    $timestamp = date('Y-m-d H:i:s');
    $batch =  (new Batch)->get_current_batch();

    foreach ($request->selectedUsers as $user) {
        $groupUserx = GroupUser::where([
            'id' => $user
        ])
        ->update([
            'updated_at' => $timestamp,
            'updated_by' => Auth::user()->id,
            'is_active' => 0
        ]);
        $this->audit_logs('groups_users', $user, 'has been removed to the group.', GroupUser::find($user), $timestamp, Auth::user()->id);
    }

    $data = array(
        'data' => $request->selectedUsers,
        'title' => 'Well done!',
        'text' => "The user's has been successfully removed.",
        'type' => 'success',
        'class' => 'btn-brand'
    );

    echo json_encode( $data ); exit();
}
```

Send SMS functionality

Add User's functionality

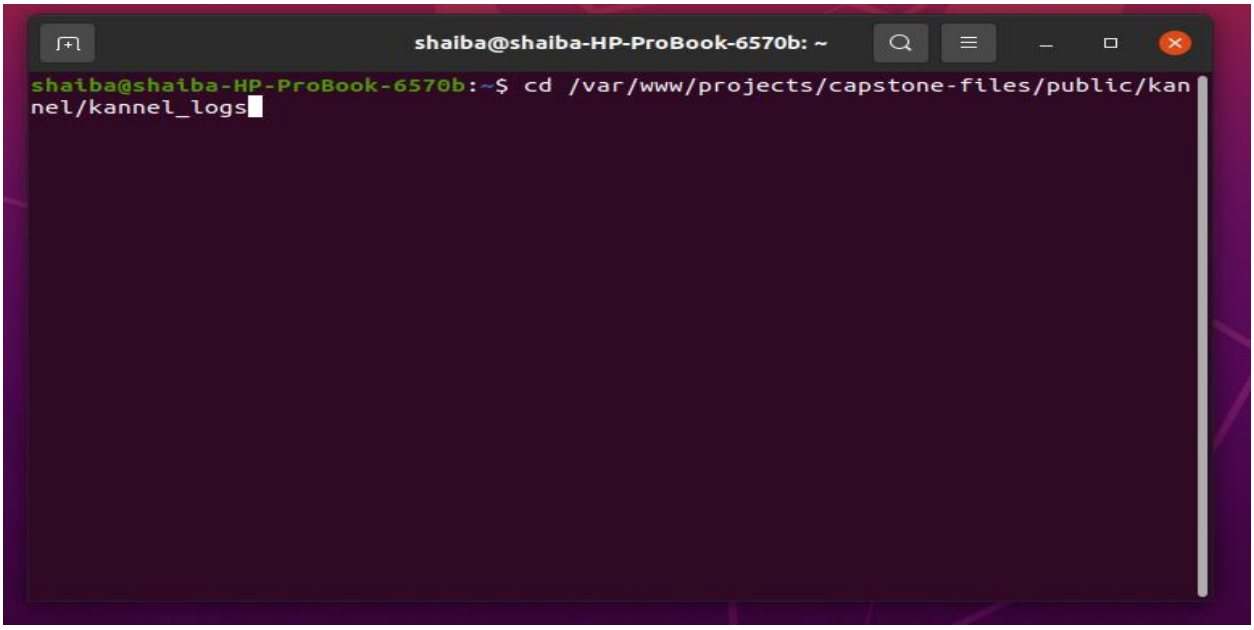
```
public function add_users(Request $request, $id)
{
    $timestamp = date('Y-m-d H:i:s');
    $batch =  (new Batch)->get_current_batch();

    $members = explode(',', $request->memberz);
    foreach ($members as $member) {
        $groupUserx = GroupUser::where([
            'group_id' => $id,
            'batch_id' => $batch,
            'users_id' => $member,
        ])->get();

        if ($groupUserx->count() > 0) {
            $exist = $groupUserx->first();
            $groupUserx = GroupUser::find($exist->id);
            $groupUserx->updated_at = $timestamp;
            $groupUserx->updated_by = Auth::user()->id;
            $groupUserx->is_active = 1;
            if ($groupUserx->update()) {
                $this->audit_logs('groups_users', $exist->id, 'has modified a group user.', GroupUser::find($exist->id), $timestamp, Auth::user()->id);
            }
        } else {
            $groupUserx = GroupUser::create([
                'group_id' => $id,
                'batch_id' => $batch,
                'users_id' => $member,
                'created_at' => $timestamp,
                'created_by' => Auth::user()->id
            ]);
            $this->audit_logs('groups_users', $groupUserx->id, 'has added a user on group.', GroupUser::find($groupUserx->id), $timestamp, Auth::user()->id);
        }
    }

    $data = array(
        'data' => $request->members,
        'title' => 'Well done!',
        'text' => "The user's has been successfully added.",
        'type' => 'success',
        'class' => 'btn-brand'
    );

    echo json_encode( $data ); exit();
}
```

```
    if ($queue) {
        $data = array(
            'message_type_id' => $request->message_type_id,
            'messages' => $request->messages,
            'groups' => $request->groups,
            'sections' => $request->sections,
            'users' => $request->users,
            'anonymous' => $request->anonymous,
            'title' => 'Well done!',
            'text' => 'The messages has been successfully sent.',
            'type' => 'success',
            'class' => 'btn-brand'
        );

        echo json_encode( $data ); exit();
    }
}
```

Creating Group functionality

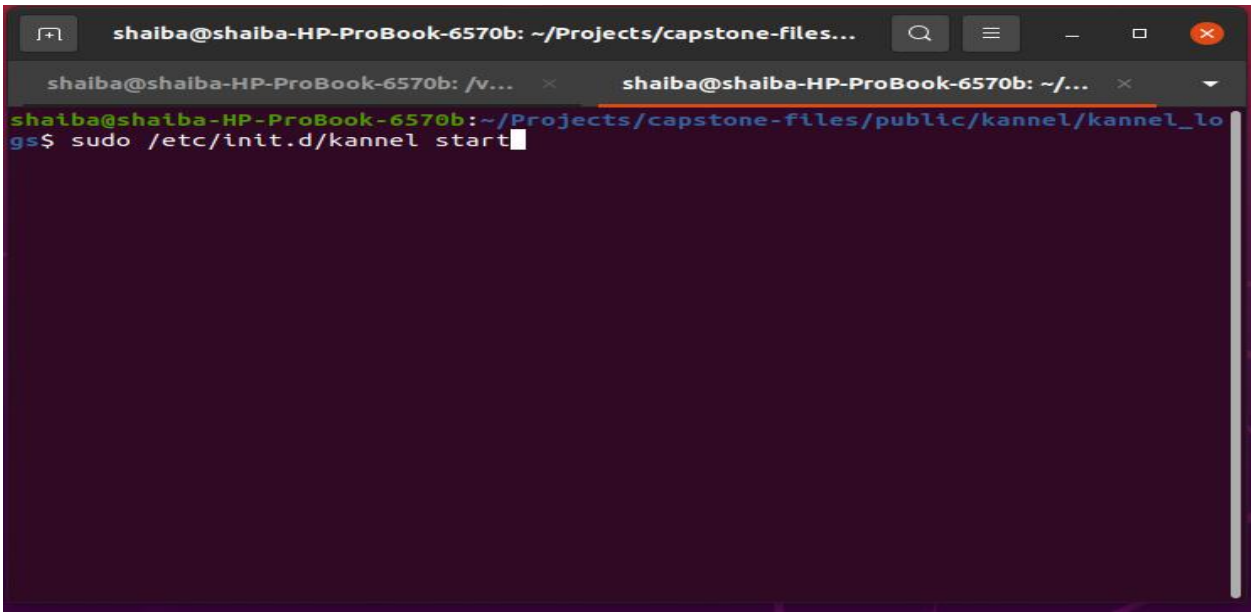
```
public function store(Request $request)
{
    $this->is_permitted(0);
    $timestamp = date('Y-m-d H:i:s');
    $batch_id = Batch::where('is_active','1')->where('status','Current')->pluck('id');

    $group = Group::create([
        'code' => $request->code,
        'name' => $request->name,
        'description' => $request->description,
        'created_at' => $timestamp,
        'created_by' => Auth::user()->id
    ]);

    if (!$group) {
        throw new NotFoundHttpException();
    }

    $auditLogs = AuditLog::create([
        'entity' => 'groups',
        'entity_id' => $group->id,
        'description' => 'has inserted a new group.',
        'data' => json_encode(Group::find($group->id)),
        'created_at' => $timestamp,
        'created_by' => Auth::user()->id
    ]);

    $data = array(
        'group_id' => $group->id,
        'title' => 'Well done!',
        'text' => 'The group has been successfully saved.',
        'type' => 'success',
        'class' => 'btn-brand'
    );

    echo json_encode( $data ); exit();
}
```

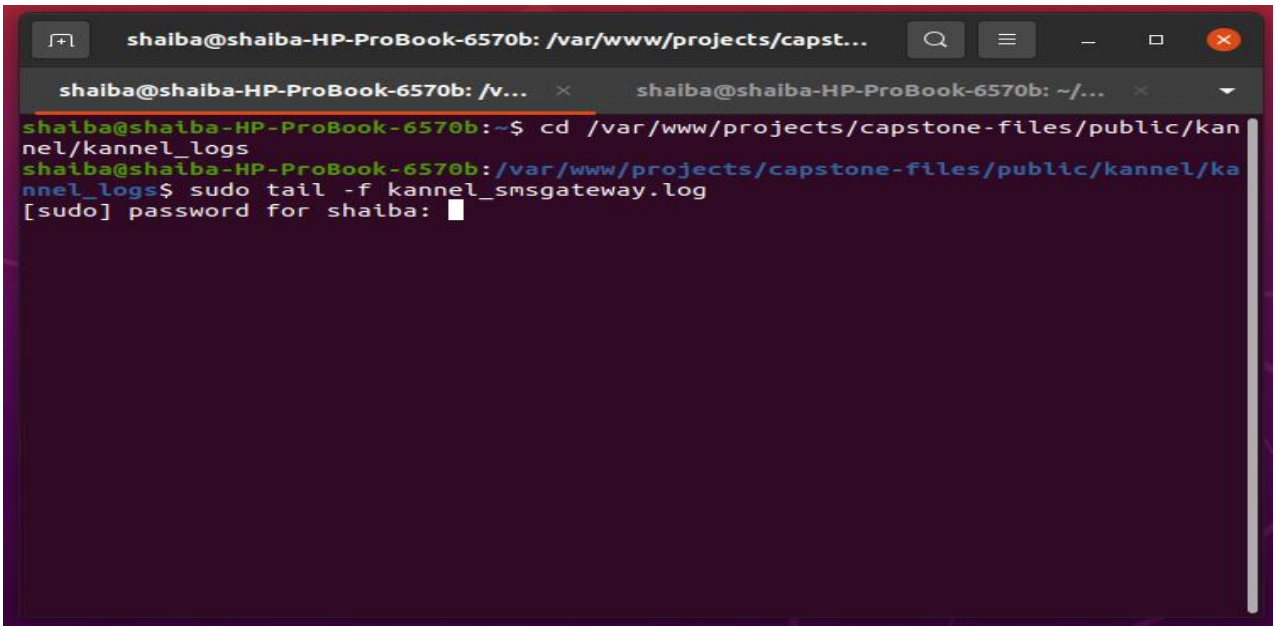
B. User's Manual



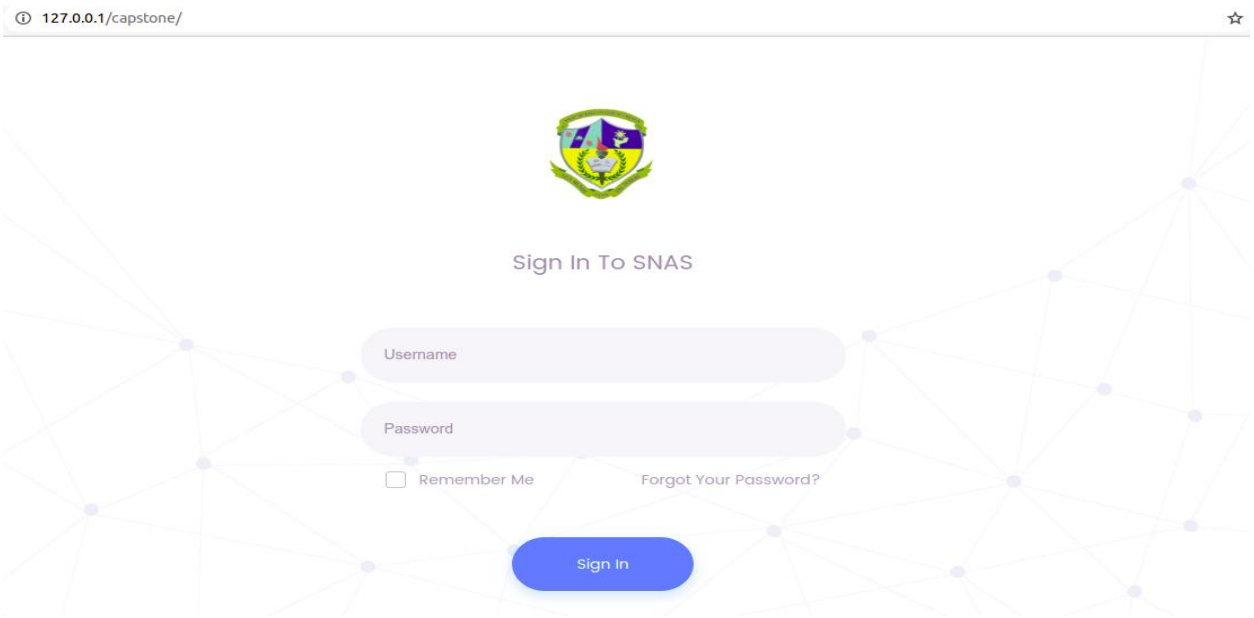
Open the terminal of the device, run the format code for Ubuntu and go to the directory of the gateway. "$ cd /var/www/projects/capstone-files/public/kannel/kannel+logs" use this format code to run in the terminal.

The next command is to start the Kannel gateway. Use this code to run the gateway " $sudo /etc/init.d/kannel start".

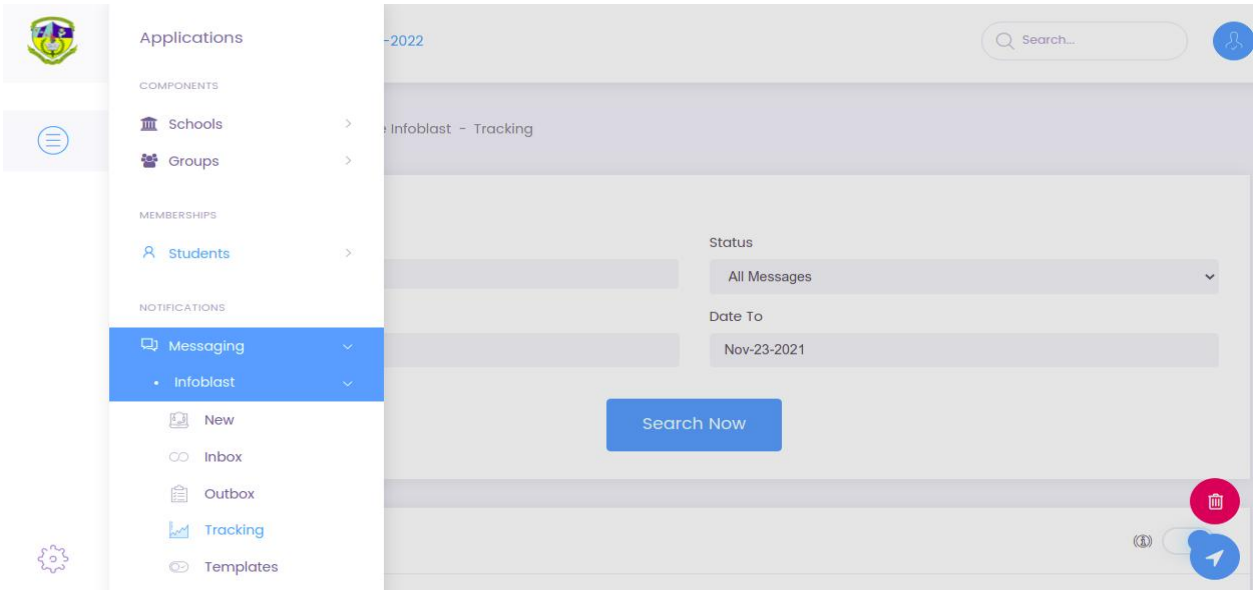




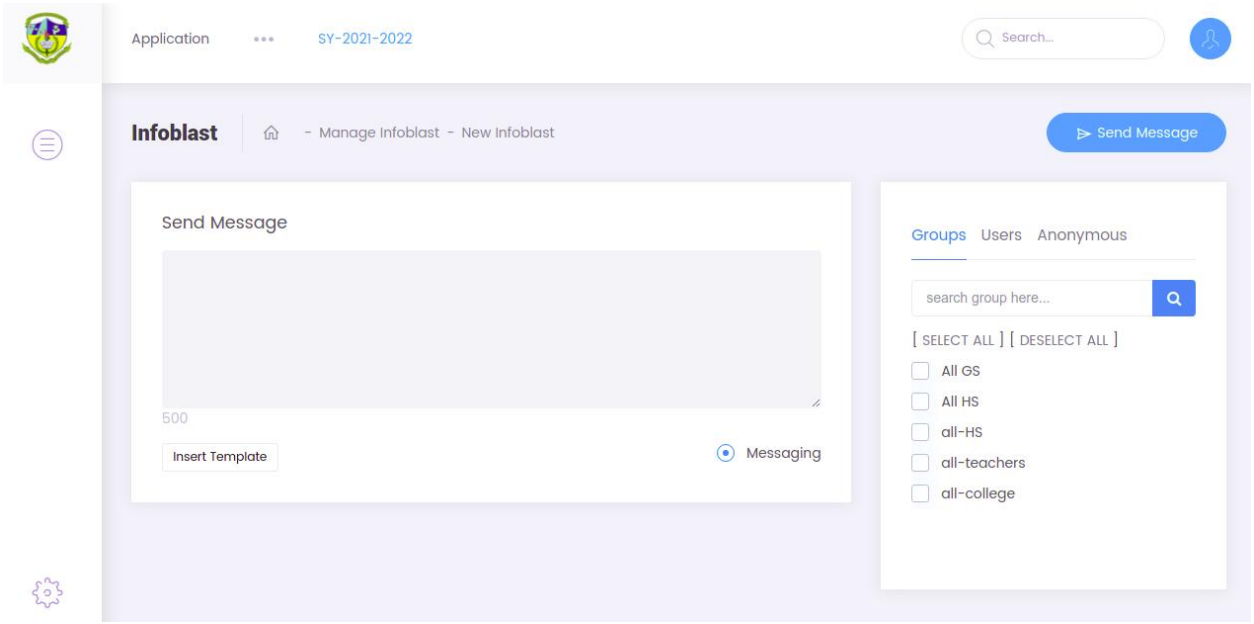
In order to see if the gateway is running or not check first if the GSM modem is connected to your device and run this code "$ sudo tail –f kannel_smsgateway.log". You have to input the laptop/pc password to in order to proceed. After you're done starting the gateway you can now go to the browser and use the system.



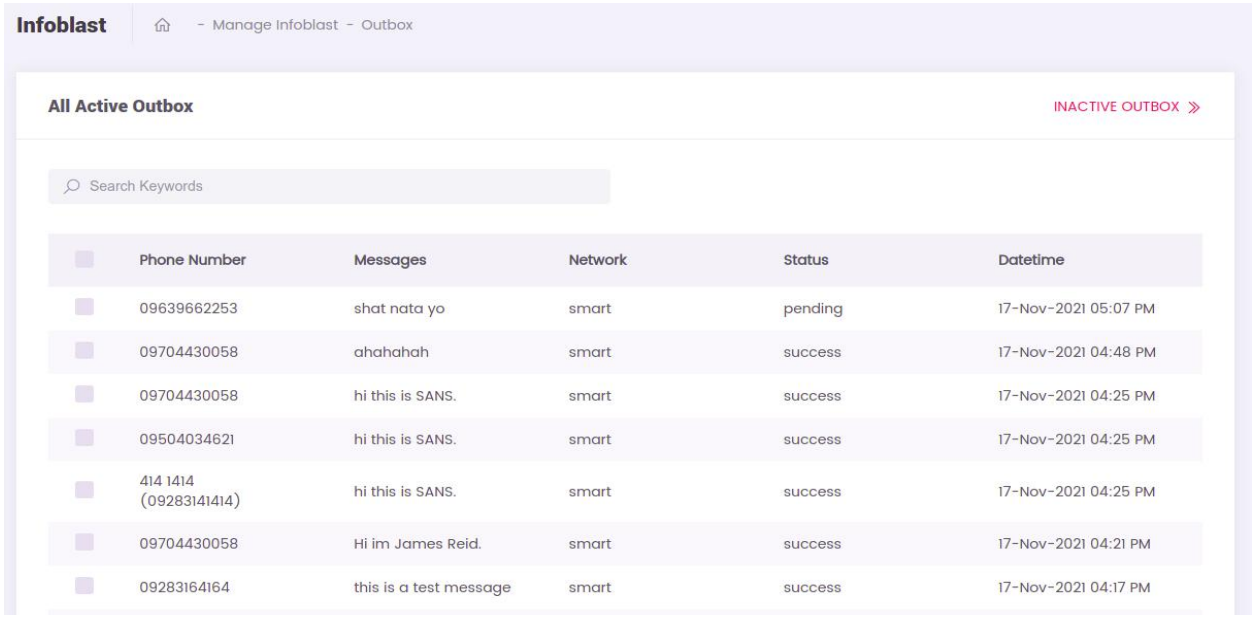
Open your default browser and input the address to access the system. The address is 127.0.0.1/capstone. After that the administrator will log in the admin account,



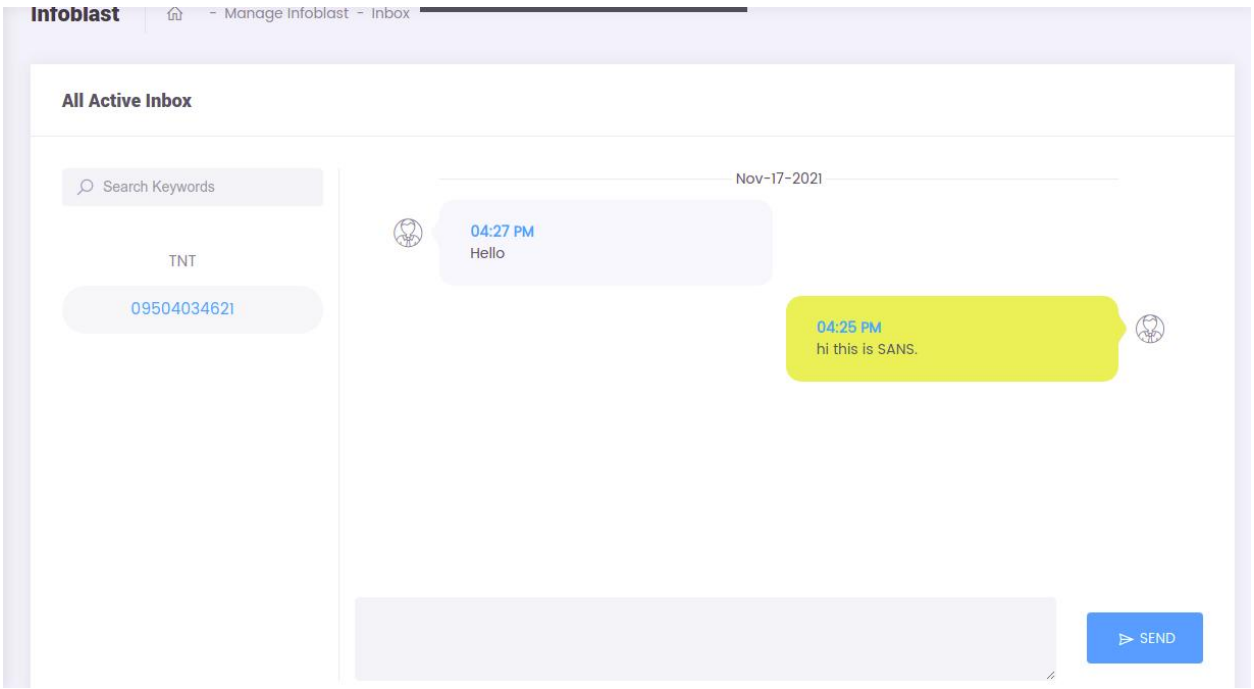
After logging in you can see the navigation bar in the right side of the screen in the image above. You can choose where and what to do in the navigation bar.



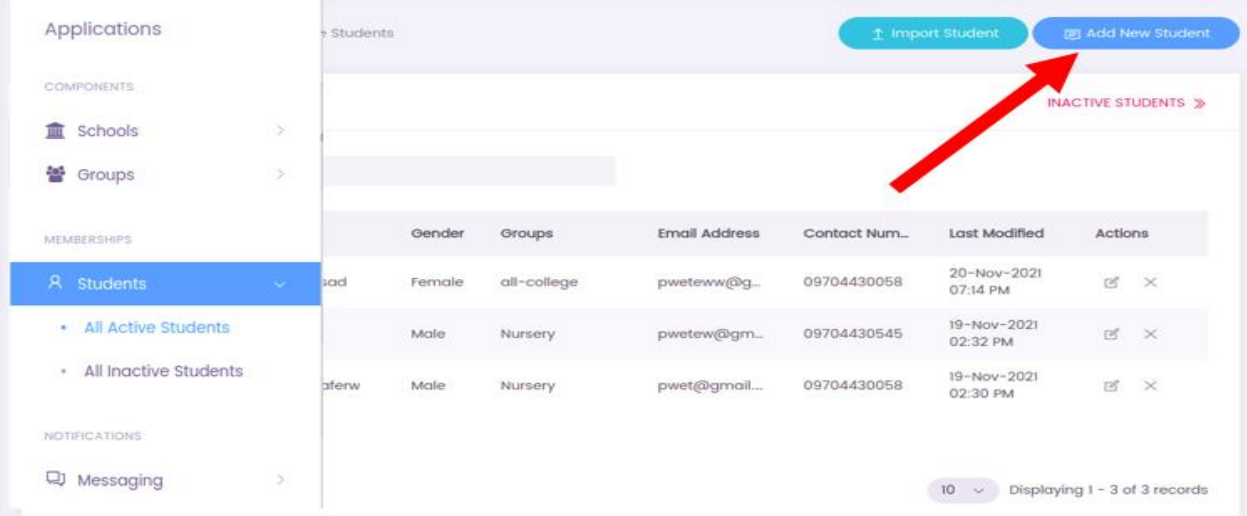
To create message click on the messaging then infloblast and new in the navigation bar. In the image above the admin can create the message and send to the chosen users in the left side of the interface. To send the message click the button in the left side above the user field.



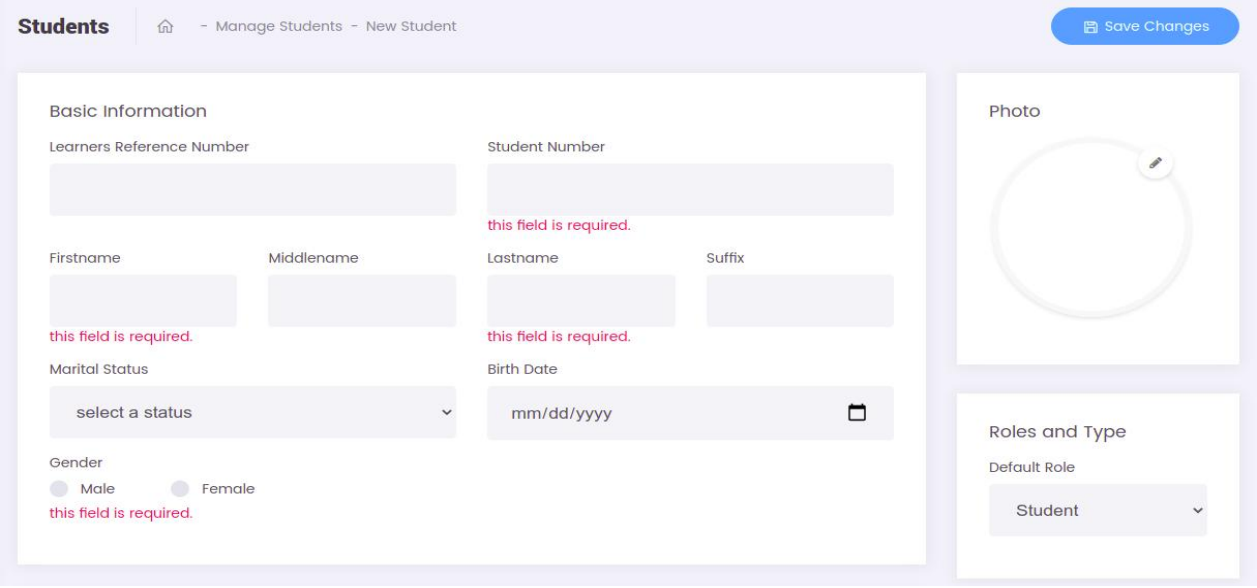
Click the Messaging then infloblast and outbox to open outbox to determine if the message is sent or not. It shows pending if it did not sent and success if the message is sent.



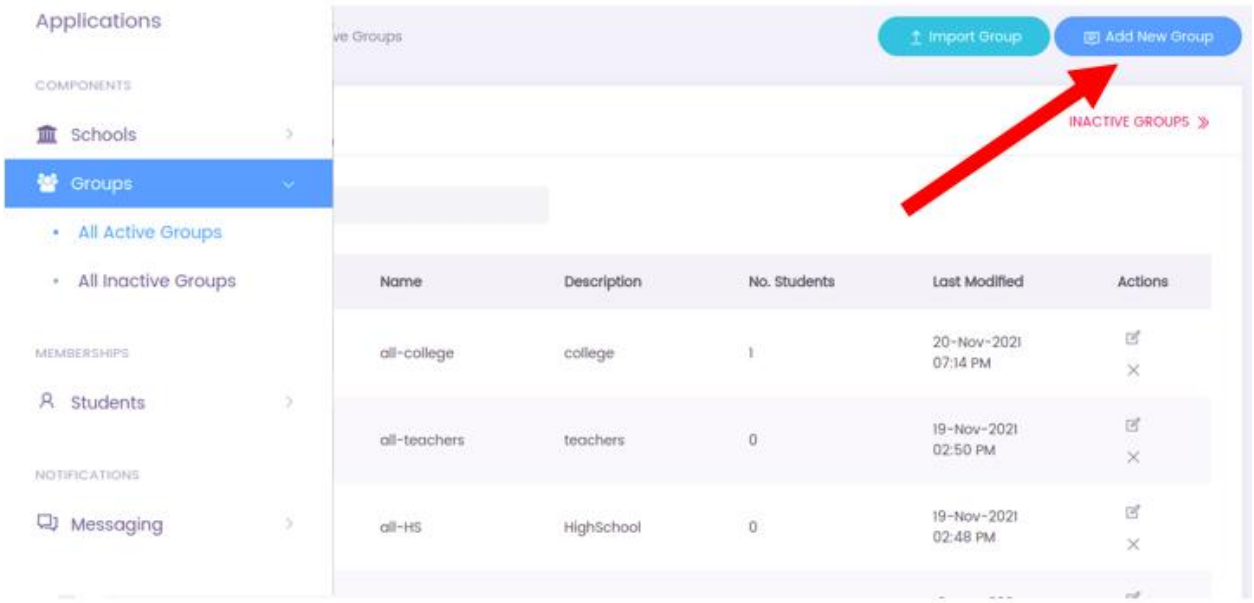
Click on messaging in the navigation bar then infloblast and inbox to open the inbox of the system. In the inbox you can read and reply messages and click the button in the below right side in to send your reply.



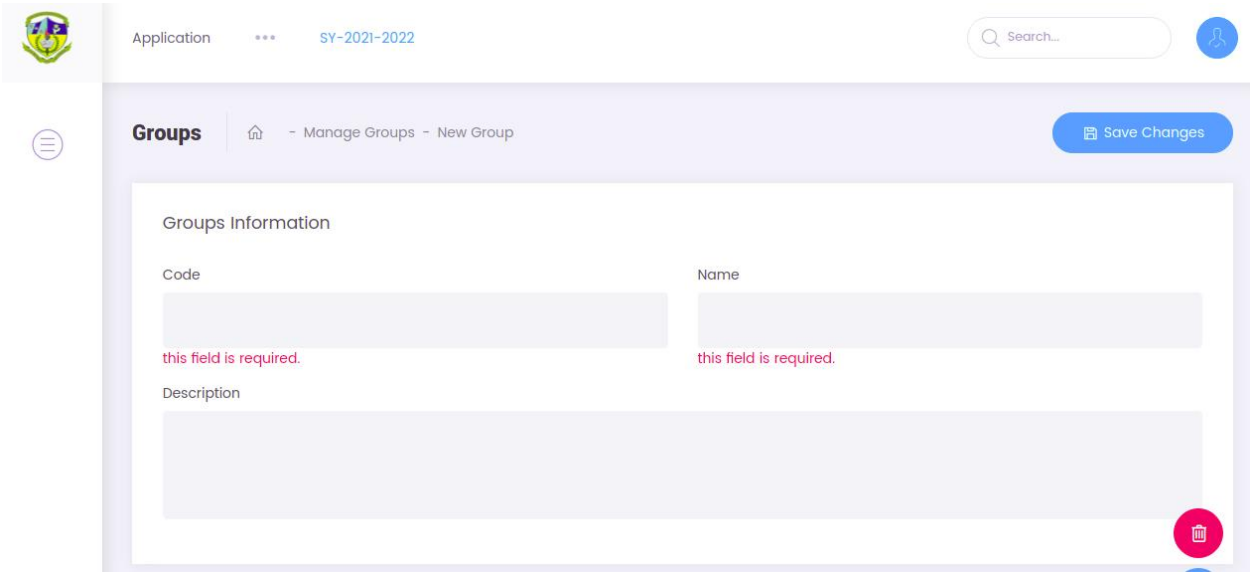
In the navigation bar if the admin click on students the admin will promt into an interface where the administrator can add new students as shown of the arrow in the image above.



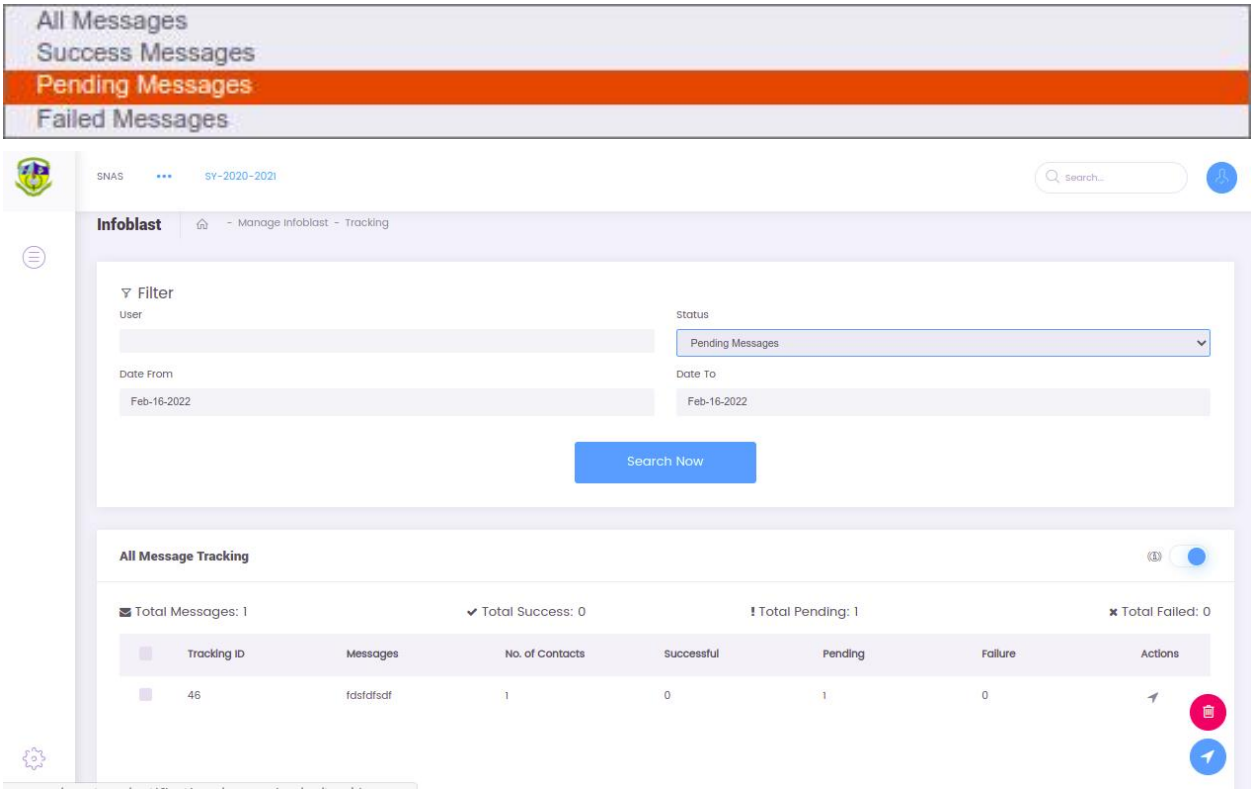
After clicking the add new students this is the next step where the admin will input all the new students data in the required field shown in the image above.



To create a new group click the groups in the navigation bar and click add new group to make new group if you wanted to.



Fill up the required field to finish creating the new group.



In the upper part, the right side of the image above, the user can see the selection box named status. The status can be one of three types of data messages: success, pending, or failed. The user can select any of these options and then click "search now." In the lower portion of the graphic, the admin can see all of the message tracking labels. The data that the administrator selects in the selection will appear in this box, and the administrator can edit the data. The administrator can also take immediate action and resend the pending and failure notices.

C. Documented Undertakings

D. The Map of the Research Locale

The image above is a map of the system research location. It is where. It is the location of the system and where the research study respondents will access it.

The satellite view of the system research location has shown above. It is where the system and where the research study respondents will be able to access it.

E. Curriculum Vitae

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I. PERSONAL INFORMATION

Gender **:** Female

Religion **:** Islam

Birthday **:** March 17, 1999

Place of Birth **:** Buenavista, Agusan del Norte

Civil Status **:** Single

Mother's Name **:** Panamokan A. Domado

Father's Name **:** Acay A. Domado

II. EDUCATIONAL BACKGROUND

Tertiary: Saint Michael College of Caraga

Bachelor of Science in Information Technology

Nasipit, Agusan del Norte

2018 – Present

Secondary: **Buenavista Institute**

Buenavista, Agusan del Norte

2012 – 2018

Primary: Buenavista East Central Elementary School

Buenavista, Agusan del Norte

2006-2012

E. Curriculum Vitae

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I. PERSONAL INFORMATION

Gender **:** Male

Religion **:** Roman Catholic

Birthday **:** January 16, 1999

Place of Birth **:** Nasipit District Hospital

Civil Status **:** Single

Mother's Name **:** Saturnina M. Guerrero

Father's Name **:** Micaelo M. Guerrero

II. EDUCATIONAL BACKGROUND

Tertiary: Saint Michael College of Caraga

Bachelor of Science in Information Technology

Nasipit, Agusan del Norte

2018 – Present

Secondary: Saint James High School

Buenavista, Agusan del Norte

2012 – 2018

Primary: Macalang Elementary School

Macalang, Agusan del Norte

2006 – 2012

E. Curriculum Vitae

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III. PERSONAL INFORMATION

Gender **:** Female

Religion **:** Roman Catholic

Birthday **:** November 3, 1999

Place of Birth **:** Sto. Rosario, Sasa, Davao City

Civil Status **:** Single

Mother's Name **:** Miraluna G. Genoguin

Father's Name **:** Allan L. Lucino

IV. EDUCATIONAL BACKGROUND

Tertiary: Saint Michael College of Caraga

Bachelor of Science in Information Technology

Nasipit, Agusan del Norte

2018 – Present

Secondary: Nasipit National High School

Nasipit, Agusan del Norte

2012- 2016

Saint Michael College of Caraga

Nasipit, Agusan del Norte

2016 – 2018

Primary: St. Martin, Sunbeam Day Care Center

Sasa, Davao City