



DIGITAL ATTENDANCE AND ACCOMPLISHMENT REPORT MONITORING SYSTEM (DIGIATT)

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ABSTRACT

DigiAtt is a system designed in order to help fill in the gaps by the current online attendance system which uses google forms as major means in sending daily time record (DTR) and accomplishment reports. The drawback of the previous system is the difficulty of tracking the DTR and accomplishment reports as it records separate responses daily. However, DigiAtt features a mobile application that made DTR and Accomplishment Reports submission convenient to the employees and to the supervisors. The app collects both DTR and Accomplishment Reports before logging out, which helps the institution to monitor employee's performance. This also features a web application that contains dashboard for easy monitoring and printing of reports needed by the administration for the work from home arrangements. The researchers carried-out this using the Agile: Scrum methodology of software engineering which enables the team to break the user stories/tasks according to its priority, daily standup meetings and consistent communication efforts with the stakeholders until a fully shippable product will be delivered.

Keywords: Mobile Attendance, Online Attendance, Accomplishment Report, Monitoring System, Web Application, Philippines

INTRODUCTION

The pandemic halted the world's rotation in a span of few days. CoVid-19 almost stopped every normal activity that a human does. It suspended jobs, classes, social activities and forced us to look for another avenue to live a life with the virus around us. "NEW NORMAL" as they say. As part of the new normal, some of the businesses, establishments, institutions, school and etc. shifted to a work from home arrangement

which made establishment's monitoring of their employees a bit challenging.

Bohol Island State University-Candijay Campus (BISU-CC) is not exempted in the work from home arrangement. In fact, the employees especially the faculty, were instructed to do so. The checking of attendance or DTR is done via Google Forms and the daily submission accomplishment reports to the head of office for monitoring via email. The monitoring and compilation of accomplishment reports and printing of DTR are both time consuming to the end of the in-charge.



The use of Google Forms is not a wrong idea but the system is a huge burden to those who are in-charge for the consolidation and for every employee when it comes to tracking his or her own DTR and Accomplishment Reports.

With the current system, the department has found several problems such as time –in and time-in taps submitted maybe just mock attendances, accomplishment reports cannot be effectively monitored daily, the faculty may or may not submit his/her daily accomplishment report, the separate submission of the DTR and accomplishment reports may cause more hassle to the officer in-charge, consolidating the DTR and reports is time consuming and tracking of own DTR and accomplishment reports requires more time.

Oo, S. B., et.al, 2018, mentioned that the employee and attendance information will be more effective if employees and managers can access real time from anywhere to manage and make a good decision. In the current work from home setup of BISU-CC a good attendance system that could effectively check the attendances of the faculty and staff to ensure that they are functioning well according to their assigned duties.

Kumar, B. D., & Kareemulla, S., 2017, developed a system that uses smartphones and QR code to login in the application and later uses fingerprint and voice recognition to verify login. Using a system with this complexity may take time as it needs stable internet connection in sending requests from the server. Gupta, A., et.al. 2019 wrote that biometric based system to automate the attendance process are a great help the authentication of users.

The studies mentioned above developed great technologies in monitoring the attendance of the employees. However, the studies lacked the core need of BISU-Candijay Campus which is the mandatory submission of accomplishment reports remotely at the end of the day, the capability to view own daily time record (DTR), and the close monitoring and printing of reports via web application.

To fill in the gaps, the researchers conceptualized and developed Digital Attendance and Accomplishment Report Monitoring System (DigiAtt). It is a system of combined Android Studio Mobile Application and Web Applications which

work as a one in checking the attendance at the same time the collection of accomplishment reports. The system features one-time android application for DTR and Accomplishment report submission, auto-collect accomplishment reports with evidences, admin panel that enables the in-charge to view DTR and accomplishment reports, a feature that allows the in-charge to print DTR and accomplishment report with the evidences, web version for non-android users, full access for the faculty to view his/her own DTR and accomplishment reports, user account and privileges and a dashboard that shows real-time reports in graphical view.

Before the submission of the logout action, an accomplishment report will be collected. Meaning, if one cannot submit the logout action if one fails to submit an accomplishment report. The system consisting of multiple user accounts with specific privileges.

OBJECTIVES OF THE STUDY

The general objective of this study is to develop an application that aims to: 1) To give convenience to the monitoring of attendances and accomplishment reports; 2) To provide a less hassle way of reproducing DTR and Reports generation; and; 3) To give convenience to the end of the employees in logging in and out.

METHODOLOGY

Software Engineering Methodology

This project used agile methodology of software engineering. It is a methodology by which a team can deal with a task by separating it into phases and including consistent joint effort with stakeholders and constant improvement and iteration at each stage. Each iteration in the agile methodology, design modifications are made and new system features are added. The fundamental thought behind this approach is to build up a project through rehashed cycles called iterations one module at any given sprint.

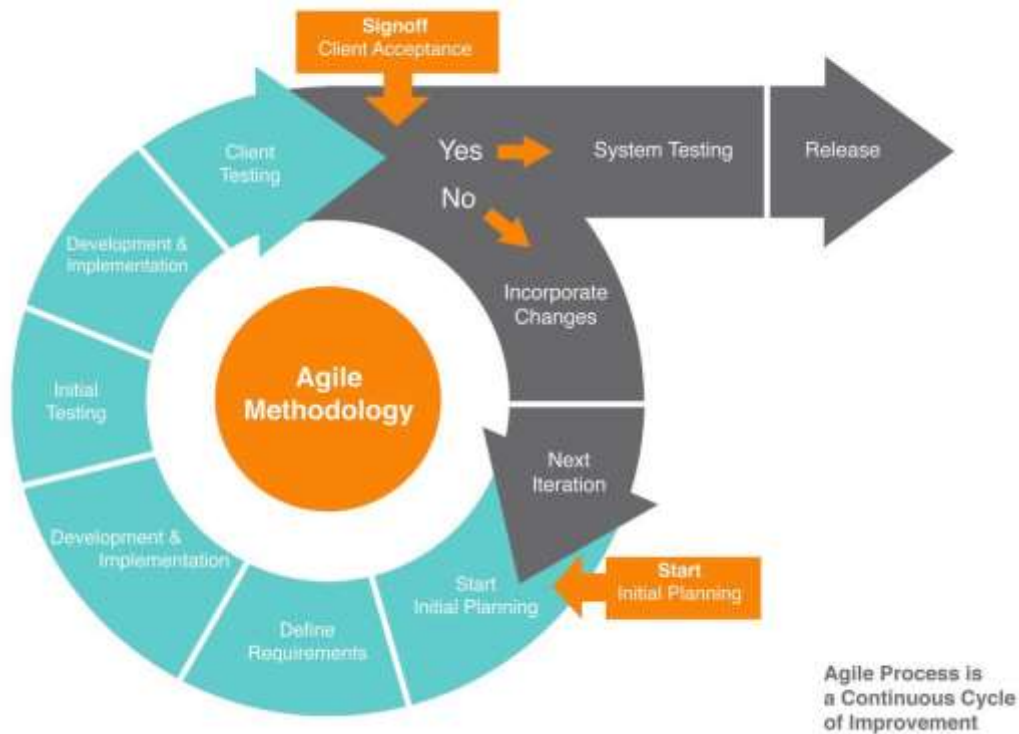


Figure 1. Agile Methodology

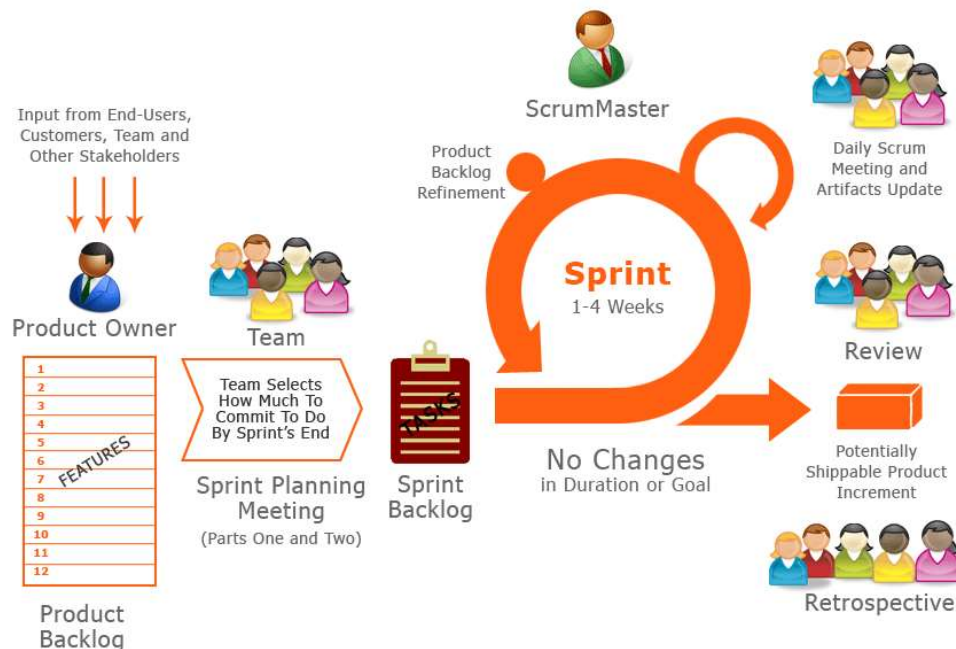


Figure 2. Scrum Framework

In this project, the researchers utilized the Scrum framework of the Agile Methodology to further indicate the iterations in the Agile Methodology as scrum framework provides a more specific iterations called sprints before the conceivably shippable product will be discharged to the customer. Scrum enables us to concentrate on conveying the business esteem in the most limited time. It quickly and more than once investigates real working programming. It underlines responsibility, collaboration, and iterative advancement toward a well-characterized objective.

The Scrum Framework, more often than not, manages the way that the prerequisites are probably going to change or more often than not known toward the beginning of the undertaking. It has the following phases: product backlog, sprint

planning, sprint, and backlog refinement. Figure 2 illustrates scrum framework used in this study. The researchers collected information by studying the existing system and conducting an interview with the officer in-charge to identify the gaps and the possible solutions. After the collection of information, the researchers listed all the features that will be implemented and the right amount of man power to do the job at the given amount of time. The progress of the project was monitored daily by the scrum master in a form of standup meetings daily. To check the potential deliverable product, the researchers presented the project to the admin council meeting. The product has been pilot tested in Bohol Island State University Candijay Campus. All the recommendations were undertaken and resulted to a fully shippable product.

RESULTS AND DISCUSSION

1. Mobile App Main Scree and DTR Screen

After the project has been deployed, the system was able to perform according to its objectives. Figure 3. shows the mobile application main screen where the basic operations such as time-in and out will be done. This also displays the

profile picture, employee’s full name and view DTR button that shows the monthly DTR summary if tapped. A time-out action cannot be submitted if there is no attached accomplishment report. As per agreed, there will be no accomplishment report to be submitted during the morning sessions. This means that the system will only collect accomplishment reports during time-out in the afternoon.



Figure 3. Mobile App MainScreen (left) and DTR Screen (right)



Figure 3. DTR Screen shows the monthly attendance logs. The display includes the Saturdays, Sundays and the holidays. This is in order to help the employee monitor his/her own logs and for future references.

2. Dashboard

The dashboard displays the registered employees, percentage of login and out, attendance (present), late, the registered employees per department, and the monthly report of attendances in graphical form.

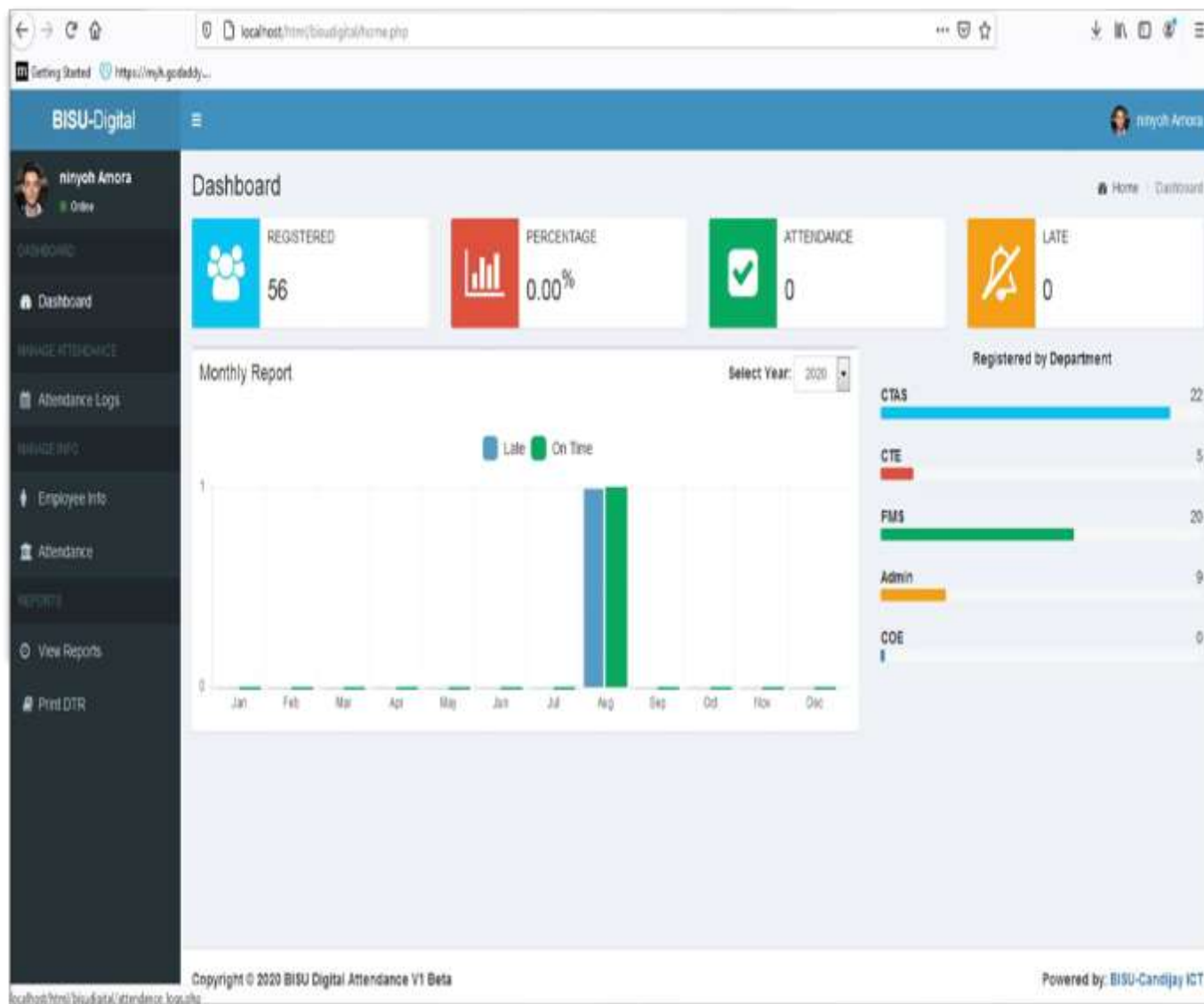


Figure 4. Dashboard

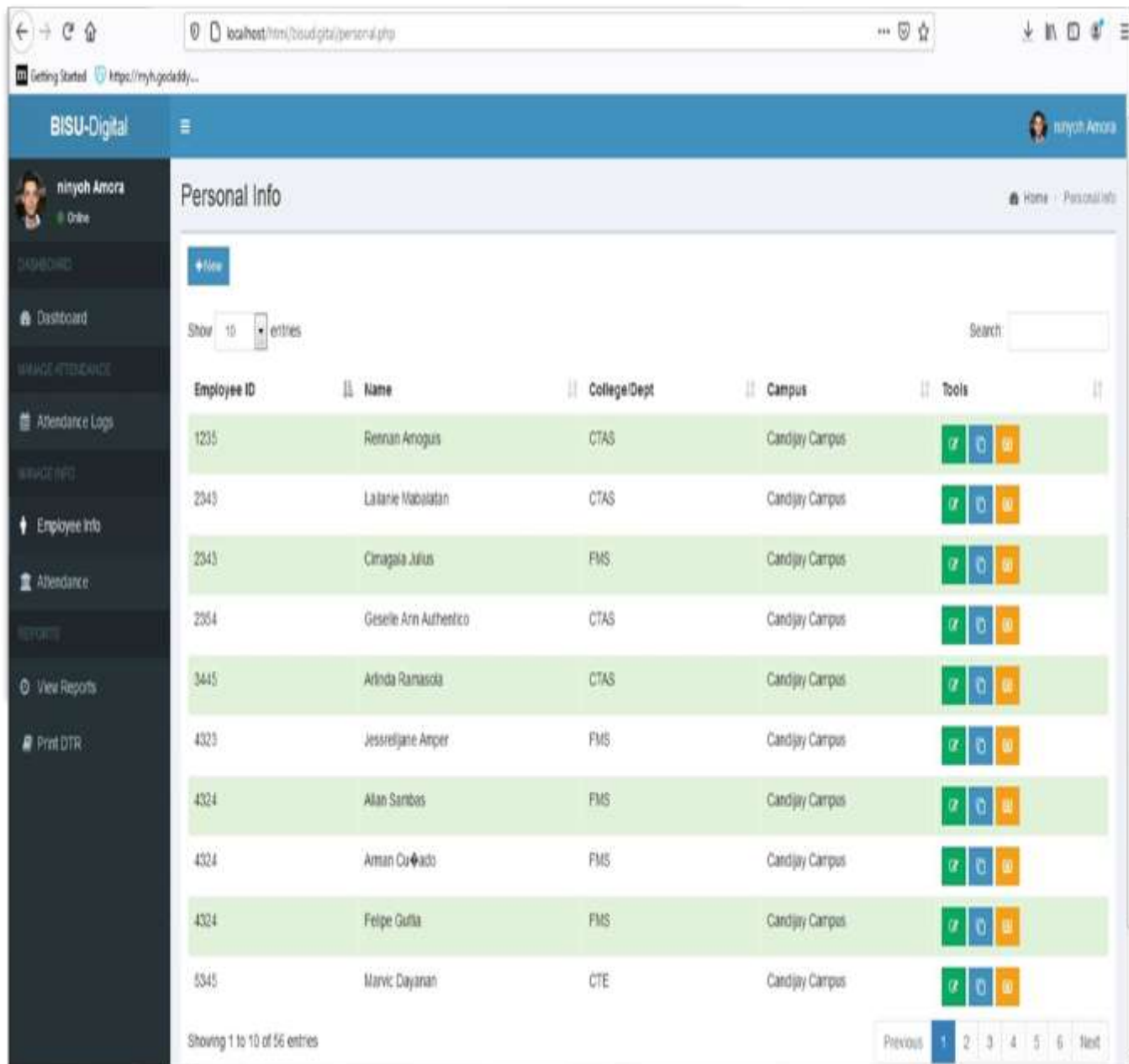


Figure 5. Personal Information

Figure 5 illustrates the basic personal information of the employees. This is also used to add, update and remove an employee from the system.

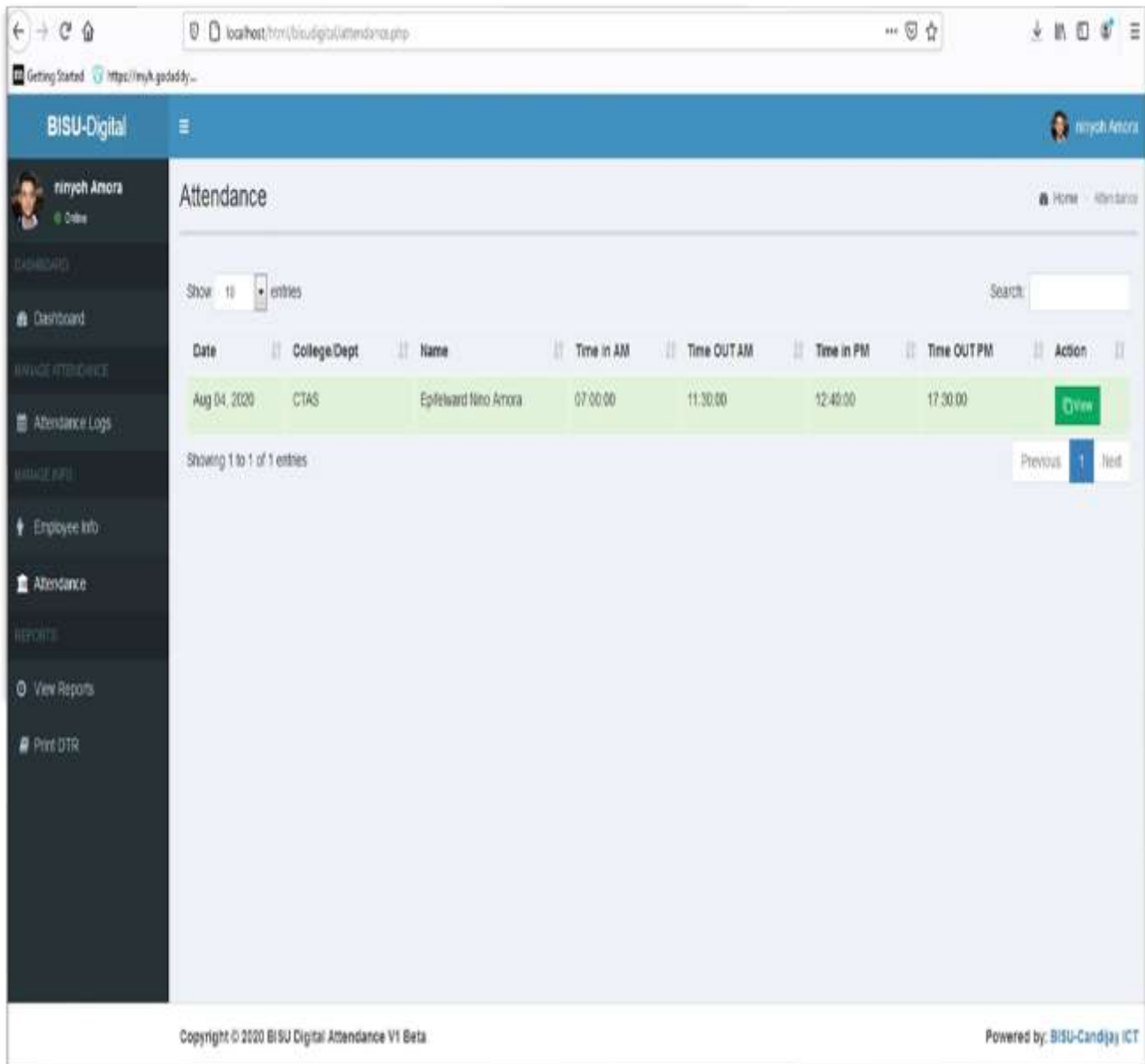


Figure 6. Daily Attendance

This shows the daily attendance of the employees. Options included are filtering the attendance by names, dates and printing.

Figure 7 below presents the report's print preview

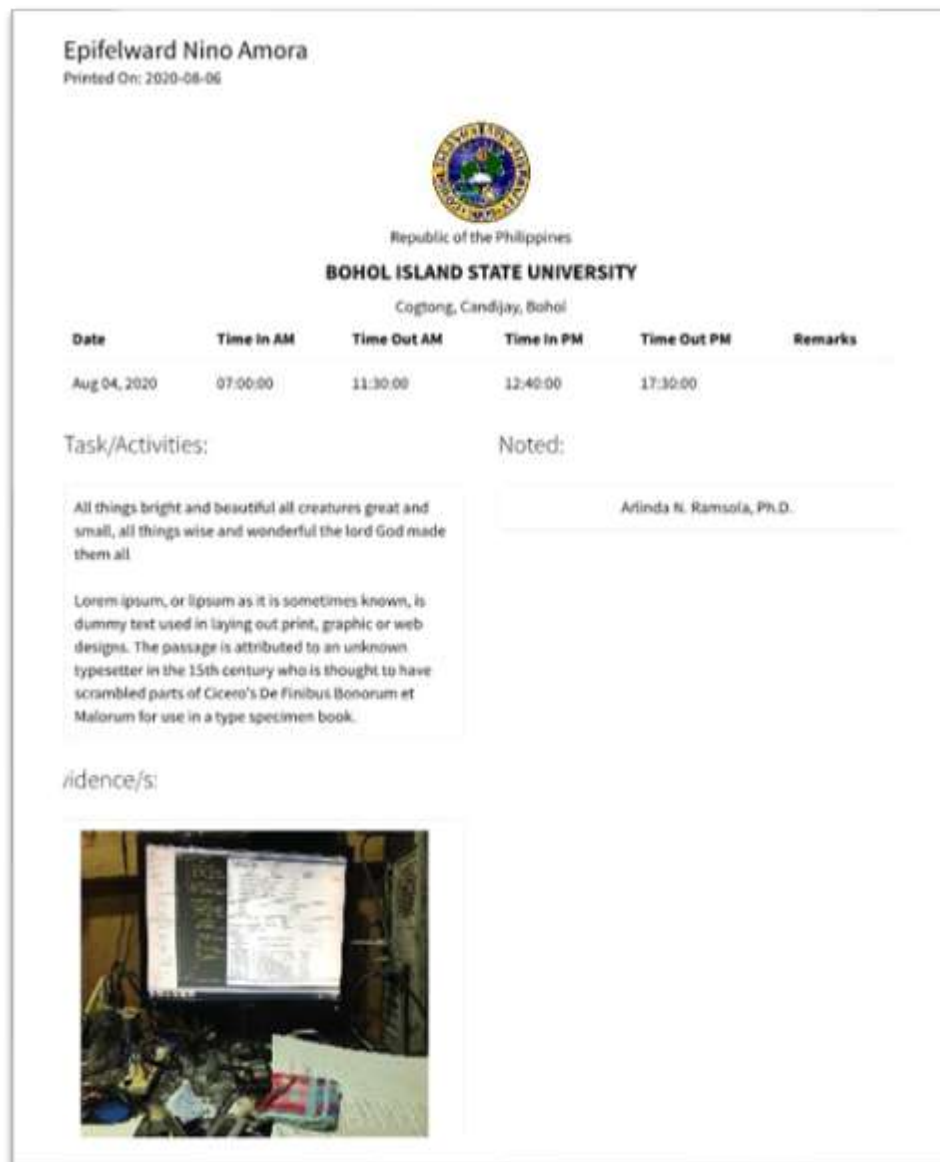


Figure 7. Print Preview

3. Application Features of Digital Attendance and Accomplishment Report Monitoring System (DIGIATT)

3.1 Monitoring of attendances and accomplishment reports

DigiAtt provides a way for the administrators to monitor the attendances and

accomplishment reports via dashboard module in the DigiAtt web application as shown in Figure 4. The dashboard has a quick view panel that shows the total number of registered employees, the total number of employees logged in and the number of employees logged in late. The accomplishment reports can be viewed via daily attendance module that allows the in-



charge to filter attendances in specific dates, view specific employees and displays daily attendance print preview like shown in figure 7 with the daily accomplishment submitted by the employee with pictures as evidences.

3.2 Reproducing DTR and reports generation

To reproduce the DTR, check the in-charge filters for date in the daily attendance module as presented in Figure 6 and click the print button found in the last column to print the DTR. The report can be viewed via quick view panel in the dashboard as illustrated in Figure 4).

3.3 Logging in and out of the employees

DigiAtt's main portal is the DigiAtt mobile application designed for android smartphones; Figure 3 shows the actual screenshots. The application features login and log out options in the main screen. Landing on the main screen, the employee is required to enter its personal identification number (PIN). Tapping the in button corresponds time-in action that sends the date and time of time-in into the database and included in the count on the attendance section in the quick view panel in the dashboard. The time-out button performs similar process as the time-in button except that during the time-out in the afternoon, the employee is required to submit an accomplishment report with evidences in order to proceed with the process. The employee will not be able to time-out in the morning if they do not time-in for the morning attendance.

CONCLUSIONS

The convenience in the process of time-in and time-out, submission of accomplishment reports, attendance monitoring and printing of reports increases the productivity of office workers. With the right tool that could deliver the needs during these trying times cuts of stress and burden that every individual has. DigiAtt filled in the gaps of the current online attendance system by giving

convenience to the in-in monitoring attendances and accomplishment reports, providing a less hassle way of reproducing DTR and Reports generation, printing of reports and giving convenience to the end of the employees in logging in and out.

RECOMMENDATIONS

To adopt with the new normal due to covid-19 pandemic, the institution should adopt the use of technology in its daily operation. Although BISU-Candijay Campus has been using it a while ago, the researchers still recommend using it and enjoy the benefits that the system offers. It is also suggested to other institutions to use DigiAtt to monitor the attendance and accomplishments of their employees in the simplest yet smarter way.

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