

## Utilization of Alert System in Attendance Assessment as an Early Warning Media

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### Abstrak

Semua bidang telah didukung oleh teknologi terutama di dunia pendidikan dalam proses belajar mengajar. Pada perguruan tinggi absensi merupakan suatu hal yang sangat penting untuk menunjukkan kehadiran mahasiswa yang dimana untuk menentukan pencapaian hasil belajar. Kegiatan absensi bimbingan mahasiswa dapat berlangsung baik dan lancar dengan adanya mahasiswa yang sangat aktif untuk menghadiri setiap absensi bimbingan mahasiswa dalam menyelesaikan penelitian. Namun saat ini, teridentifikasi suatu permasalahan yang dihadapi dalam penyampaian informasi hasil penilaian absensi bimbingan yaitu masih banyak mahasiswa yang tidak memperhatikan dalam absensi bimbingan yang seharusnya setiap melakukan bimbingan harus absen datang dan sesudah selesai melakukan bimbingan harus absen kembali untuk pulang serta masih banyak mahasiswa yang lupa untuk absen ulang kembali setelah selesai melakukan bimbingan. Perguruan Tinggi Raharja sudah menerapkan sistem penilaian absensi online yaitu PenA (Penilaian Absensi) yang dimana merupakan bukti perkembangan sistem informasi dalam hal edukasi. Yang dikembangkan untuk memberikan informasi perihal hasil Penilaian Absensi bimbingan kepada mahasiswa secara cepat melalui email Rinfo. Terdapat 10 (sepuluh) studi literatur dalam penelitian ini yang mengenai media penyampaian informasi melalui Email. Alert berperan penting sebagai reminder mahasiswa dalam melakukan absensi bimbingan. Dengan adanya sistem notifikasi email dalam sistem PenA sangat membantu mahasiswa mengenai hasil bimbingan melalui email Rinfo yang akan dikirim dengan otomatis setelah melakukan absensi bimbingan mahasiswa. Sehingga dapat ditarik kesimpulan bahwa notifikasi email pada sistem PenA secara otomatis sangat membantu 2 (dua) pihak yang ada pada Universitas Raharja. Dimana dalam proses absensi bimbingan mahasiswa menjadi lebih efektif dan lebih semangat dalam melakukan bimbingan.

**Kata kunci**— PenA (Penilaian Absensi) , Alert, Rinfo

### Abstract

All fields have been supported by technology, especially in the world of education in the teaching and learning process. In college absenteeism is a very important thing to show the presence of students where to determine the achievement of learning outcomes. Student guidance attendance activities can take place well and smoothly with very active students attending each student's attendance at completing research. However, at present, a problem is identified in the delivery of information on the results of the guideline absenteeism, namely there are still many students who do not pay attention to attendance guidance who should attend absences and after completing the guidance must be absent again and many students forget to be re-absent after completing guidance. Raharja College has implemented an online attendance assessment system, namely PenA (Attendance Assessment) which is a proof of the development of information systems in terms of education. Which was developed to provide information regarding the results of Assessment of Attendance Guidance to students quickly through Rinfo email. There are 10 (ten) studies of literature in this study that deal with the media for delivering information via Email. Alerts play an important role as student reminders in conducting attendance guidance. With the email notification system in the PenA system, it is very helpful for students regarding the results of guidance through Rinfo email that will be sent automatically after the student attendance attendance. So that it can be concluded that email

*notification on the PenA system automatically helps 2 (two) parties at Raharja University. Where in the attendance process student guidance becomes more effective and more enthusiastic in conducting guidance.*

**Keywords**— *PenA (Attendance Assessment) , Alert, Rinfo*

## 1. INTRODUCTION

In an educational institution the delivery of information currently requires a system that is fast and easily accessed online at any time and at any time which is always up to date [1]. Especially in the era of globalization in this day and age where technological developments have increasingly sophisticated and very quickly changed to become better. Which certainly has a huge impact on the lives of people who are always looking for information. Evidence of the development of information technology is always characterized by one of the increasingly sophisticated technological equipment, namely gadgets [2]. Which all have used an online system using computer technology and internet networks [3]. Even science has increasingly advanced and continues to encourage the creation of innovation has a positive impact on life [4]. Raharja University is an educational institution that is always motivated to keep up with the times in the field of technology and information [5]. Which continues to encourage to continue to innovate in providing good academic service facilities to students. It is undeniable that facilities are one of the supporting factors to determine the quality of education which is a standard of the relevant educational institutions [6]. The innovation provided by Raharja University is iLearning method that has been applied [7]. By providing student attendance services regarding attendance information that can determine student discipline in conducting attendance guidance and also as a supervisor lecturer can monitor in attendance that must be done 2 (two) times before and after conducting guidance [8].

It is necessary to have a system that is built in Higher Education by providing innovation in the form of delivering information that is more effective and real time so that information can be conveyed well to students [9]. And the form of innovation provided is providing excellent service for students in terms of information on assessing attendance guidance by lecturers so as to increase satisfaction with students [10]. In building a system, a user friendly display is needed for the success of the information system [11]. Online student guidance attendance activities can be monitored well, with the PenA (Attendance Assessment) system which aims to facilitate lecturers in monitoring the activeness of students in the guidance process takes place using Yii [12]. However, not all students who always remember that to do a absenteeism every time guidance is completed is very important. Most students only remember when it comes to attendance guidance. So to do absenteeism again after completion of guidance, many do not. So the system is needed that plays an important role for students to recall or reminder attendance guidance can run as expected so that the student research process can be carried out well and to provide comfort to students, especially students who are finishing their final semester [13]. So it is expected that the work of students is good and satisfying [14].

And with the Alert in the PenA system students will continue to be enthusiastic and always remember and be motivated again to always be active in doing attendance guidance. So students can complete the final project quickly and precisely and can provide optimal benefits [15]. Where the lecturer who has inputted the student guidance attendance assessment automatically gets information via Rinfo email [16]. So that it can provide the quality and quantity of an existing system [17].



Figure 1. The Raharja College Logo (Source: <http://raharja.ac.id>)

Raharja University always participates in the field of information technology which is a testament to the success of its technology, namely the existence of a Rinfo e-mail from one of the TPi (Ten Pillar IT iLearning), which is a supporter in the dissemination of information at Raharja College [18]. In the implementation of Email Rinfo on the PenA system it is used as a reminder to each student's guidance, which can be used as a self reminder or reminder to other personal raharja [19].

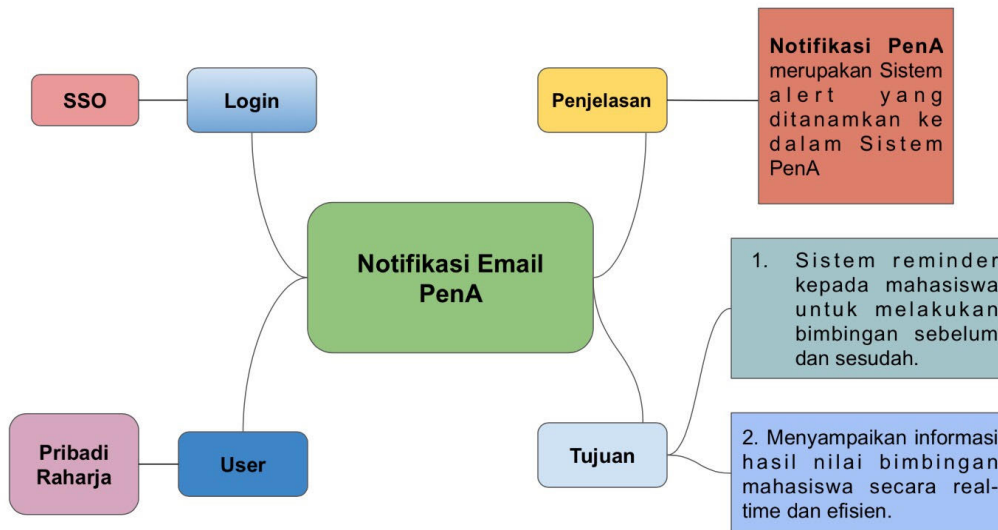
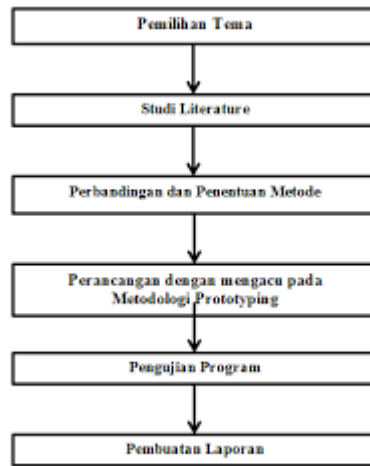


Figure 2. Mind Mapping PenA Email Notifications

The picture above explains the mind mapping of the PenA email notification which consists of: Light Blue, login, that is by Single Sign On (SSO) with Email Info [20]. Deep Blue, describes the user, namely Personal Raharja. Orange, the explanation is the PenA notification is an alert system that is embedded in the PenA system. The light blue color, describes the goal as a reminder system to students who have not done a guidance absence and deliver information on the results of the guidance value in real time and efficiently to students.

## 2. REASERCH METHOD

In compiling the stages of research can be seen in Figure 3



**Figure 3** Research Stages

Information :

1. At Point no 1 Looking for problems, then determine the theme to be taken, namely Alert. At Point no 2, that is the literature study, was carried out to find the PENA system reference, read and understand from various sources such as journals and books.
2. In Point no 3, which is the comparison between the methods used, by comparing the methods of the automatic email notification system to get the right method that can be used to be implemented in the process of making a program.
3. At Point no 4, namely the use of system design methods that can be adjusted to the problems and programs created. This methodology used in the design of this program is the prototyping method.
4. At Point no 5 namely Testing the program, this stage is carried out for the validity and reliability of the program that has been made.
5. At Point no 6, namely Writing reports in the form of online documents.

The following are 10 (ten) literature reviews used in this study:

1. The study was conducted by Findra Kartika Sari Dewi, Theresia Devi Indriasari and Yoris Prayogo, entitled "Designing Mobile Application Reminder Academic Activities". This study discusses the provision in an application for reminder in the form of alarm regarding the schedule of academic activities, which is useful as a medium for distributing information about changes in academic schedules in real-time, and as a reminder system for students and lecturers to carry out academic activities according to the schedule informed. [21]
2. The study was conducted by Stacey R. Finkelstein, Nan Liu, David Rosenthal, et al under the title "Appointment Reminder Systems and Patient Preferences Patient Technology Usage Familiarity with Other service providers as predictive variables". This study discusses the reminder system for patients responsively and automatically by using email notifications, the point is for patients not to forget the schedule of meetings with healthcare providers. This is caused by the patient's undisciplined on the medical schedule that has been determined, so this is problematic for health care providers. [22]
3. This study was conducted by Chia Lei Lin, Nila Mistry, Jordana Boneh et al under the title "Text Message Reminders Increase Appointment Adherence in a Pediatric Clinic A Randomized Controlled Trial". This study discusses electronic messages to remind time for patients to take care. Where is the reminder technology via SMS is useful for increasing obedience and compliance of patients in conducting care. [23]
4. Research conducted by Anuj K Dalal, Jeffery L Schnipper, et al with the title "Design And Implementation Of Automated Email Notification System for Results Of Tests Pending at Discharge". This study discusses the development and implementation of automatic e-mail notifications to physicians responsible for delayed TPAD test results, in order to encourage

- doctors to be able to provide information on test results to patients who are being treated quickly. [24]
5. This research was conducted by Nagaraj Bhat, Shricharana U, Pratheek P Hegde, et al under the title "Development of Integrated Message alert system for Weather Informatics". This research discusses the problem of climate change that is happening in India which has a negative impact on crop production. So it requires an efficient delivery of weather information update media, via text messages (SMS) and Email. [25]
  6. Research conducted by Qurotul Aini, Rubin Hakita Irwin, Eka Marjayanti with the title "Notification of Learning iLearning Through iDu Application Media Using Rinfo E-mail". This study discusses the lecture and student information delivery system online through the iDu application media via Rinfo email. So this is useful so that the delivery of information between students and lecturers can be conveyed efficiently, anywhere, and at any time. [26]
  7. Research conducted by Arief Hendra Saptadi and Jaenal Arifin with the title "System Monitoring Temperature and Humidity with Notification Via Email". This study discusses the use of email media to convey information in the form of temperature and humidity data measured using DHT22 and RTC DS1307 sensors, where if the temperature or humidity value exceeds a certain threshold value, an email notification will be sent to the officer or operator for monitoring. [27]
  8. Research conducted by Untung Rahardja, Indri Handayani, Meylda Sarah Parwati with the title "Subscriber Widget as a Media for Disseminating Information Update on sk.raharja.ac.id Website". This study discusses the supporting media of the subscriber widget in timeliness that is used to disseminate information on the website sk.raharja.ac.id, by only registering emails in the subscriber field to obtain information about the latest articles quickly and on time that will automatically enter the visitor's email the. [28]
  9. This research was conducted by I Gede Putu Krisna Juliharta, Wiwik Muyasaroh with the title "Mail Auto Response Disparity Rate Application Case Study of PT. GO Online Destinations ". This study discusses the making of an application to be able to send an automatic email to all hotel parties registered at PT. GO Online Destinations, where this email notification contains the difference in price (disparity) that occurs between OTA (Online Travel Agent) with one another OTA. [29]
  10. Research conducted by Desmira and Nur Singgih with the title "Design and Build an SMS Gateway Reminder Payment Schedule Reminder Schedule". This study discusses the use of Gammu software as an SMS Gateway to be implemented as a reminder of customer installment schedules before maturity, and for 24 hours non-stop providing information by sending SMS automatically regarding information needed for customers. [30]

### 3. RESULTS AND DISCUSSION

#### 3.1 Problem Analysis

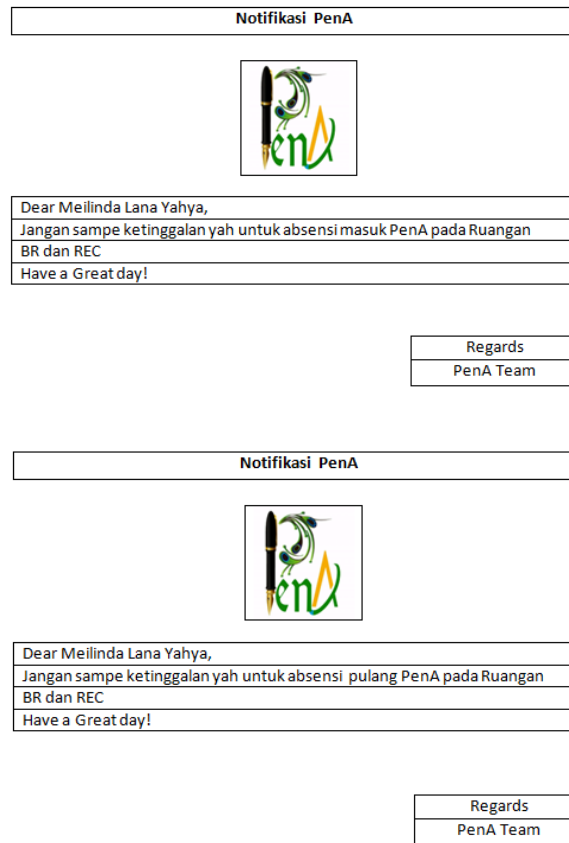
Raharja University is a campus that is engaged in advanced IT. However, there are still problems encountered in assessing student guidance and attendance must find solutions in order to solve existing problems.

In the guidance process it is very important for every university, especially at Raharja University, because it helps students to finish their final assignments on time. And in this case the problem faced is especially in the student guidance attendance section. Students often do not remember or forget to do absences after the guidance is complete. Often students often neglect to do absences again because this factor is based on individuals from students themselves. Lack of enthusiasm for students to immediately finish their final assignments.

And there is no reminder or reminder to do attendance again after returning home or after completing guidance as a tool to facilitate students in remembering it.

### 3.2 Problem Solving

To overcome the problems that have already been described above, we need a more effective and efficient process in delivering attendance information for students to be reminders or reminders for each student's guidance.

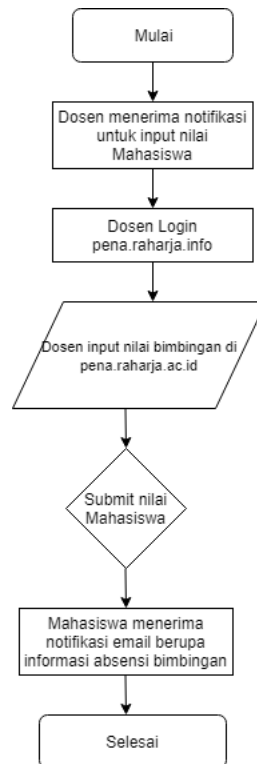


**Figure 4.** Display Prototype email notifications to come and go home.

The picture above is a prototype display on the email notification contained in the PenA system. Where in the prototype above there is a content column to notify students to attend the going and going guidance. Which is in the Header section of the prototype above is the PenA notification and for the Button section is a greeting from the team that handles the PenA system. That will be sent to students and a notification will appear to each student's Rinfo email.

### 3.3 Flowchart Algoritma

After observing and analyzing the problems that occur in the current system, therefore in the process of delivering information on the value of student guidance attendance from lecturer to student has changed into 5 (five) steps online, as shown in the flowchart below:



**Figure 5.** Flowchart delivery of information on the value of student guidance through PENA

The picture above illustrates the 5 (five) steps in the process of conveying student guidance value information using the PenA system as follows: (1) The lecturer receives a notification for student input. (2) Lecturers log in using email info. (3) Lecturers input the value of guidance in PenA. (4) The lecturer conducts to submit. (5) Students immediately receive an email notification to be absent before and after conducting guidance.

#### 3.4. Program Listing

PenA is used as a means of conveying information about notifications to make a absence of guidance that utilizes Rinfo e-mail facilities as a media notification email to 2 (two) parties, namely Lecturers and Students. Here is the program listing:

```

public function actionRemindermasuk(){
    $hasil = Yii::$app->Pena->getRemindermasuk();
    foreach ($hasil as $data) {
        $jam = date("H:i:s");
    }
}
  
```

```

Yii::$app->mailer->compose()
->setFrom(['pena@rahjarja.info-noreply' => 'PenA - Penilaian Absensi'])
->setTo(['.$data['Email']'])
->setSubject('Hi '.$data['NamaLengkap'].', Jangan Lupa untuk Absensi Masuk PenA ya.')
->setTextBody('coba')
->setHtmlBody('<html>
<head>
</head>
<body style="margin: 0; padding: 0;">
<table border="0" cellpadding="0" cellspacing="0" width="100%">
<tr>
<td style="padding: 10px 0 30px 0;">
<table align="center" border="0" cellpadding="0" cellspacing="0" width="600" style="border: 1px solid #cccccc; border-collapse: collapse;">
<tr>
<td align="center" bgcolor="#228822" style="padding: 40px 0 30px 0; color: #ffffff; font-size: 20px; font-weight: bold; font-family: Arial, sans-serif;">
<b>PenA - Penilaian Absensi</b>
</td>
</tr>
<tr>
<td align="center" bgcolor="#ffffff" style="padding: 40px 0 30px 0; color: #153643; font-size: 20px; font-weight: bold; font-family: Arial, sans-serif;">

</td>
</tr>
<tr>
<td align="center" style="padding: 40px 30px 40px 30px;">
<table border="0" cellpadding="0" cellspacing="0" width="100%">
<tr>
<td style="color: #153643; font-family: Arial, sans-serif; font-size: 24px;">
<b>Notifikasi PenA</b>
<hr />
</td>
</tr>
</table>
</tr>
<tr>
<td style="padding: 20px 0 30px 0; color: #153643; font-family: Arial, sans-serif; font-size: 16px; line-height: 20px;">
<p align="left">Dear '.$data['NamaLengkap'].</p>
<p align="justify">Jangan sampe ketinggalan yah untuk absensi masuk PenA pada Ruangan BR dan REK</p>
Have a Great day!
<p></p>
<p align="right">
Regards</p>
<p align="right">
PenA Team</p>
</td>
</tr>
</table>

</td>
</tr>
<tr>
<td align="center" style="padding: 30px 30px 30px 30px;">
<table border="0" cellpadding="0" cellspacing="0" width="100%">
<tr>
<td align="center" style="color: #ffffff; font-family: Arial, sans-serif; font-size: 16px; width="75%">
Everything Made With Love<br/>
Copyright '.$data['Y']'. <a href="#" style="color: #ffffff;">font color="#ffffff">PenA</font></a>
</td>
</tr>
</table>
</td>
</tr>
</table>
</tr>

```

Figure 6 Listing email program on PenA

The picture above is a listing program to provide notification to students, where students immediately get a notification reminder to do the guidance absence before and after doing it.

### 3.5 Implementation

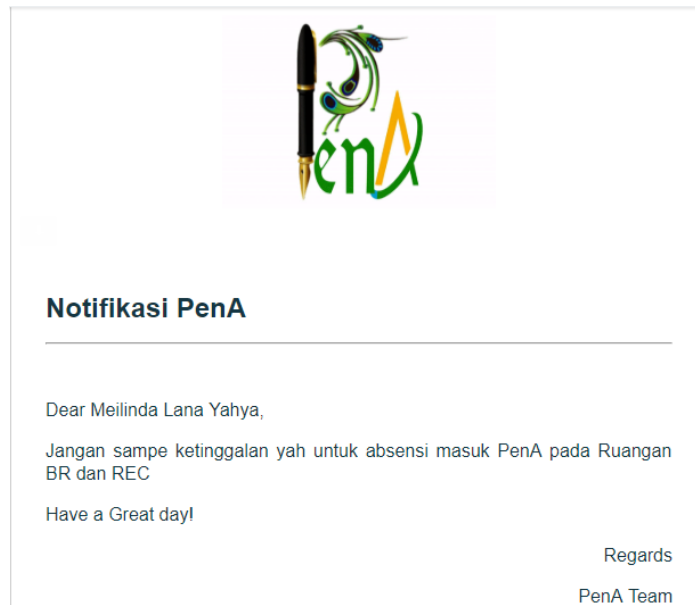
#### 3.5.1 Main page



Figure 7. The main menu describing the main page on the PenA website is <https://pena.rahjarja.ac.id/>

#### 3.5.2. Notification of attendance email notifications to students





**Figure 8.** Email notification to students

### 3.5.3 Reminder attendance email notification to go home to students



**Figure 9.** Email reminder notification for students

Students will receive a reminder email or reminder as in figure 9. Students will immediately re-attend the attendance after conducting guidance which will be sent automatically via Rinfor email. And this e-mail notification will continue to be received by students every day at the time of attendance and after conducting guidance.

## 4. CONCLUSION

With the Alert on PenA (Attendance Assessment) this is an effective support system in providing information in the form of assessing student guidance. Submitting information on mentoring attendance assessments becomes more efficient in the matter of time. As well as the reminder notification to students to re-attend the attendance again after the guidance is finished via email which is certainly very important and makes it easier for students to not forget again and always remember it.

## 5. SUGGESTION

Based on the explanation that has been described previously by the author, it can be concluded from the explanation, there are 2 (two) suggestions as follows:

1. So that there is always an email notification as a student reminder to be a benchmark of student discipline to always be absent again after having done the guidance
2. Further development for the visual notification of the PenA (Attendance Assessment) sent via email to be given to each student the guidance is more interesting so that it can give a new and different look.

## REFERENCES

- [1]. Rahardja, U., Sunarya, P. A., Aini, Q., & Dewi, S. R. (2019). Solusi Payment Online Berbasis Cloud Accounting Pada Manajemen Perguruan Tinggi. *InfoTekJar: Jurnal Nasional Informatika dan Teknologi Jaringan*, 3(2), 9-15.
- [2]. Sutrisno, S., & Sajidin, A. (2019). Gadgetku.id application as a Solution to Facilitate the Fulfillment of All Gadget Needs today (case study: area Tangerang Banten). *Aptisi Transactions On Technopreneurship (ATT)*, 1(1), 52-63.
- [3]. Wibowo, A., Putra, A., Dewi, M., & Radianto, D. (2019). Study Of Divergence Of Go Public Company's Financial Performance Based On Website Before and After Merger Using Window Period Method Time Frame 2015 - 2017. *Aptisi Transactions On Technopreneurship (ATT)*, 1(1), 27-51.
- [4]. M. Ngafifi, "Advances in Technology and Patterns of Human Life in Socio-Cultural Perspective," J. Pembang. Pendidik. Fondasi dan Apl., vol. 2, no. 1, pp. 33–47, 2014.
- [5]. Sunarya, P., Bernard, D., & Damanik, D. (2019). Viewboard Implementation Based on Javascript Charts As a Media for Submitting Sales Information on a Green E-Commerce Website Light Cafe. *Aptisi Transactions On Technopreneurship (ATT)*, 1(1), 11-19.
- [6]. Henderi, H., Zcull, H., & Putri, C. (2019). Utilization of Testimonials Menu as Submission Media Information on Buyer Satisfaction on the Website E-Commerce Raharja Internet Café. *Aptisi Transactions On Technopreneurship (ATT)*, 1(1), 101-108.
- [7]. Aini, Q., Rahardja, U., Supriyati, R., & Khoirunisa, A. (2019). Pengaruh Mailing Groups Sebagai Media Diskusi Dalam Motivasi Belajar Mahasiswa. *JURNAL MEDIA INFORMATIKA BUDIDARMA*, 3(1), 24-29.
- [8]. Aini, Q., Graha, Y. I., & Zuliana, S. R. (2017). Penerapan Absensi QRCode Mahasiswa Bimbingan Belajar pada Website berbasis Yii Framework. *Sisfotenika*, 7(2), 207-218.
- [9]. Nurhaeni, T., Karts, K., & Hardini, M. (2019). Viewboard Effectiveness on Raharja Internet Cafe Website as Sales Information Submission Media. *Aptisi Transactions On Technopreneurship (ATT)*, 1(1), 20-26.
- [10]. Q. Aini, "Pengembangan PEN+ (Penilaian Plus) Untuk Efisiensi RPU Dalam Rangka Meningkatkan Tingkat Kepuasan," STMIK Raharja Tangerang, 2016.
- [11]. Rahardja, U., Aini, Q., Apriani, D., & Khoirunisa, A. (2019). Optimalisasi Informasi Manajemen Laporan Assignment Pada Website Berbasis Content Management System. *Technomedia Journal*, 3(2), 213-223.
- [12]. Hariguna, T., Yusup, M., & Priyadi, A. (2019). The Transaction Optimization Of Color Print Sales Through E-Commerce Website Based On Yii Framework On Higher Education. *Aptisi Transactions On Technopreneurship (ATT)*, 1(1), 1-10.
- [13]. Ilamsyah, I., Robertz, A., & Fitriani, R. (2019). The Web-based Internet Cafe (RIC) Raharja Ordering System. *Aptisi Transactions On Technopreneurship (ATT)*, 1(1), 93-100.
- [14]. Santoso, S., Kauf, J., & Aristo, N. (2019). The Information System Of Name Card Sales Based On Digital Marketing To Improve Creativepreneur On College E-Commerce Website. *Aptisi Transactions On Technopreneurship (ATT)*, 1(1), 64-72.
- [15]. Putra, A. I., Putra, A., Dewi, M., & Radianto, D. (2019). Differences In Intrinsic Value With Stock Market Prices Using The Price Earning Ratio (Per) Approach As An Investment Decision Making Indicator (Case Study Of Manufacturing Companies In Indonesia Period 2016 - 2017). *Aptisi Transactions On Technopreneurship (ATT)*, 1(1), 82-92.

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- [16]. U. Rahardja, Q. Aini, and N. Enay, "Optimalisasi Dashboard pada Sistem Penilaian Ujian Mahasiswa Sebagai Media Informasi Perguruan Tinggi Optimizing Dashboard on Assessment System As An Information Media in Higher Education," *SISFOTENIKA*, vol. 7, no. 2, pp. 167–176, 2017.
- [17]. Zarlis, M., Harahap, E., & Husna, L. (2019). Test Appraisal System Application Based on YII Framework as Media Input Student Value Final Project and Thesis Session at Higher Education. *Aptisi Transactions On Technopreneurship (ATT)*, 1(1), 73-81.
- [18]. U. Rahardja, K. Tiara, and R. Wijaya, "Penerapan Rinfo Sebagai Media Pendukung Untuk Proses Pembelajaran Pada Perguruan Tinggi Raharja," *CCIT J.*, vol. 8, no. 40, pp. 101–115, 2014.
- [19]. Rahardja, U., Aini, Q., & Putri, D. M. (2018). Pemanfaatan Automated Email System (AEMS) Sebagai Media Notifikasi Penilaian Hasil Belajar. *SENSITEK*, 1(1), 49-54.
- [20]. U. Rahardja et al., "Penggunaan System Single Sign On (SSO) dalam Mendukung Kemajuan pada Forum RHJFOX di Perguruan Tinggi Raharja," *Semin. Ilm. Sist. Inf. dan Teknol. Inf.*, no. 40, 2017.
- [21]. F. Kartika, S. Dewi, T. D. Indriasari, and Y. Prayogo, "Rancang Bangun Aplikasi Pengingat Kegiatan Akademik Berbasis Mobile," *J. Buana Inform.*, vol. 7, pp. 303–312, 2016
- [22]. S. R. Finkelstein, N. Liu, B. Jani, D. Rosenthal, and L. Poghosyan, "Appointment reminder systems and patient preferences: Patient technology usage and familiarity with other service providers as predictive variables," *Health Informatics J.*, vol. 19, no. 2, pp. 79–90, 2013.
- [23]. C.-L. Lin, N. Mistry, J. Boneh, H. Li, and R. Lazebnik, "Text Message Reminders Increase Appointment Adherence in a Pediatric Clinic: A Randomized Controlled Trial," *Int. J. Pediatr.*, vol. 2016, pp. 1–6, 2016.
- [24]. Dalal, A.K et al., "Design and implementation of an automated email notification system for results of tests pending at discharge." *Journal of the American Medical Informatics Association*, 19(4), pp.523-528. 2012.
- [25]. N. Bhat, U. Shricharana, P. P. Hegde, S. N. Karunakar, and S. R. P, "Development of Integrated Message alert system for Weather Informatics," *Ijarce*, vol. 5, no. 6, pp. 612–614, 2016
- [26]. Aini, Q., Irwin, R.H. and Marjayanti, E., "Notifikasi Pembelajaran iLearning Melalui Media Aplikasi iDu dengan Menggunakan E-mail Rinfo." *Technomedia Journal*, 1(2), pp.1- 12. 2017.
- [27]. A. H. Saptadi and A. Jaenal, "Sistem Pemantau Suhu dan Kelembaban Ruangan dengan Notifikasi Via Email," *Pros. Semin. Nas. MULTI DISIPLIN ILMU CALL Pap. UNISBANK*, no. 128, pp. 978–979, 2016
- [28]. U. Rahardja, I. Handayani, and M. S. Parwati, "Widget Subscriber Sebagai Media Penyebaran Informasi Update pada Website Sk . raharja . ac . id," *Cogito Smart J.*, vol.2, no. 1, pp. 54–68, 2016
- [29]. I. G. P. K. Juliharta and W. Muyasaroh, "APLIKASI MAIL AUTORESPONSE DISPARITY RATE STUDI KASUS PT . GO ONLINE DESTINATIONS," *Semin. Ilm. Sist. Inf. dan Teknol. Inf.*, no. 135, pp. 1–6, 2017.
- [30]. Desmira and N. Singgih, "Rancang Bangun Sistem Informasi Pengingat Jadwal Pembayaran Angsuran Berbasis Sms Gateway," *J. Sist. Inf.*, vol. 1, no. 1, pp. 21–28, 2014