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Implementation of Student Management System at TK Al-Wahyu Surabaya

Budi Nugroho *, Eka Prakarsa Mandyartha, M. Syahrul Munir

Informatics Department, Universitas Pembangunan Nasional "Veteran" Jawa Timur, Surabaya 60294, Indonesia

*Corresponding author:
E-mail:
budinugroho.if@upnjatim.ac.id

ABSTRACT

The School of TK Al Wahyu Surabaya has difficulties in managing student data (especially students registered in the previous few years), so the school management only focuses on the list of students in the current academic year. Data management manually takes a long time, the accuracy of the people who handle it, and is very susceptible to human error. Based on the field survey that has been carried out, school managers have difficulty managing data recorded on papers and computer files, especially when the school has to send report data to the relevant City Government Education Office. Through this community service activity (PIHAT Program), the Proposing Team offers a solution to these problems by implementing the Student Management System at TK Al-Wahyu Surabaya. In this system, student data management is carried out using web-based software to facilitate data gathering, automatic data retrieval, and student data mapping. The activity steps needed to realize the proposed solution include system requirements analysis, system customization, server & network infrastructure preparation, system installation, data entry to the system, training and assistance for system operation, evaluation of problems that arise during system operation, improvement of the system to overcome obstacles that arise and ensure the system can run according to plan, as well as final evaluation to determine the effectiveness of system implementation. Based on the activities that have been carried out, the installation of the application system and the process of assisting school administrators and admins for the operation of the system have been carried out. School administrators are very enthusiastic about implementing this system. This system supports data management and reporting to the City Government Education Office. For TK Al Wahyu Surabaya, the application of this system is a new breakthrough for schools, which have been accustomed to manual work, then use software-based methods that are faster and more effective.

Keywords: Student management, data reporting, and web-based systems

Introduction

The school of TK Al Wahyu Surabaya (located on Jl. Wisma Menanggal VI No 4, Dukuh Menanggal Village, Gayungan District, Surabaya City) has problems in managing student data (especially data related to students who have been several years before), so school management only focuses in the current academic year. Manual processes require a long time, the accuracy of the people who handle them, and are prone to errors. Based on the field survey, the school experienced many difficulties related to manual data management, especially when school management had to send data reports to the relevant Education Office.

The situation analysis was carried out based on a field survey through direct observation and discussion with the head of school, teacher's representative, and computer admin at TK Al Wahyu

Surabaya. Some important information related to the management of students in this school, among others:

1. The process of managing data for students at TK Al Wahyu Surabaya has been done manually. Most of them are in the form of administrative notes written on books/papers. Some of the data is in the form of document and excel files on the computer.
2. The average number of students per batch (every year) is 110-130 students. From year to year, data recording files relating to students are certainly increasing, both in the form of paper documents and document / excel files.
3. Human Resource that manages student administrative data is only 2 people who also double duty as technical personnel who assist the implementation of student learning activities.
4. There is no system (software) that supports student data management. The ability of personnel is really reliable in managing student data which is increasing from year to year.

Based on the situation analysis, the problem at TK Al Wahyu Surabaya is the difficulty in managing student data (especially students who have been several years before), so the school management only focuses on the list of students in the current academic year. Manual processes do require a long time, visual accuracy of the people who handle them, and are prone to errors. The number of student data from year to year is increasing, so data management is increasingly difficult. In fact, student data as a whole is important for reporting school progress, data tracking processes, trend analysis of student data, data recapitulation, student mapping, and other important information to support future institutional development decisions.

Through this community service program, the solution offered to solve these problems is the Implementation of the Student Management System. Through the implementation of this system, data management related to students is carried out using web-based software that facilitates data management, automatic data retrieval, and student data mapping. The application of the system in this activity is expected to increase convenience for school management in managing student data more easily, quickly, and automatically.

School development can also be carried out based on the results of an analysis that utilizes student databases to find out the mapping of students' backgrounds so far. This is important for the school's marketing strategy to potential community groups based on student mapping analysis. This strategy will certainly support the sustainability and development of private educational institutions such as TK Al Wahyu Surabaya whose operational needs rely on community contributions.

Material and Methods
Basic theory

The system is a collection of sub-systems that interact with each other to achieve the same goal (Abdullah, 2015; Arpan et al., 2018). There are two approaches that can be used in interpreting the system, namely an approach that emphasizes work procedures and an approach that emphasizes its components or elements (Arpan et al., 2018). The system is defined as a set of interrelated and interconnected procedures to perform a task together (Aswati et al., 2017).

In general, an information system consists of three main components, namely software, hardware and brainware (Irmayani et al., 2020). These three components are interrelated with each other. A system operates to achieve certain goals. The desired ultimate goals and objectives can be achieved only if a controlled activity is carried out (Mahyuni et al., 2017; Nasikin et al., 2012; Putri et al, 2017).

A system has certain characteristics or properties, including system components, boundaries, environment, interfaces, inputs, processing, outputs, goals, objectives, controls, and feedback (Irmayani et al., 2020; Suryanto et al., 2012). System components are everything that is a constituent part of the system. System components can be real or abstract objects. System components referred to as subsystems, can be people, objects, things or events involved in the

system. System boundaries are needed to distinguish one system from another. The absence of system boundaries will make it difficult to explain a system (Yuzistin et al., 2016). The system environment is everything that is outside the system. The system environment can be beneficial or detrimental. Generally, a favorable environment will always be maintained to maintain the sustainability of the system. Meanwhile, the adverse system environment will be minimized so that its impact is minimal, even if it is possible to eliminate it.

Activity partner

The partner of this activity is the school of TK Al Wahyu Surabaya School which is located at Jl. Wisma Menanggal VI No. 4, Dukuh Menanggal Village, Gayungan District, Surabaya City. Figures 1 and 2 show the location of the school on the map and the distance from the campus of UPN "Veteran" Jawa Timus. This school is under the School Management Foundation of Al Wahyu Surabaya.
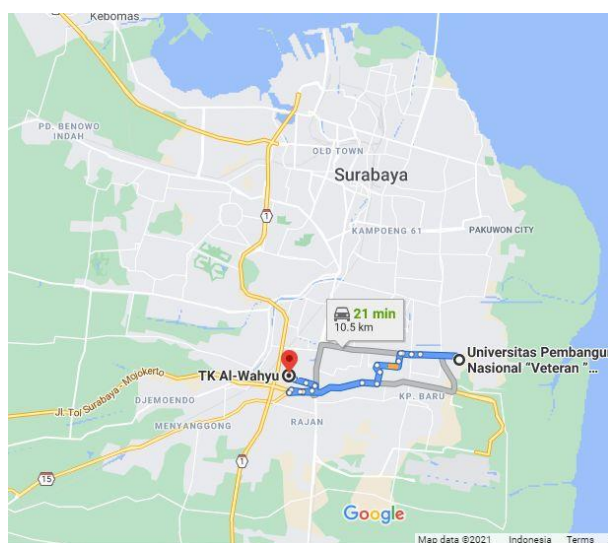

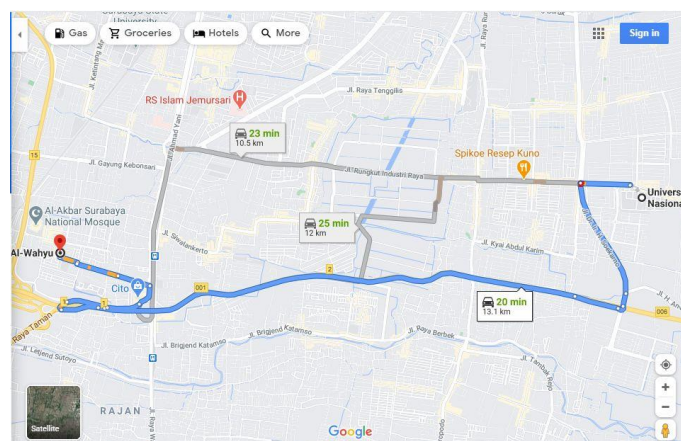Figure 1. Surabaya city map: The partner location points (TK Al-Wahyu Surabaya)

Figure 2. Distance map of the partner location from UPN "Veteran" Jawa Timur

The school buildings used for school management and student learning are shown in Figure 3. Currently, due to the pandemic period, the learning process is carried out online, but school administrators continue to carry out offline activities at the school.

Figure 3. TK Al Wahyu Surabaya Environtment

In practice, the activity implementation team conducted a field survey by interviewing the head of school, administrative staff, and computer admins. As shown in figure 4, information from the head of school as the school manager is very important, to formulate the problems experienced, the expected goals, and the accuracy of the solutions offered. Information from administrative staff, particularly related to student data, is also important to know the real conditions and models of data management so far, to formulate technical problems and solutions in a systemic manner. The school also happens to have a computer admin, who is in charge of managing student data and coordinating with the Education Office at the Surabaya City and Jawa Timur Province levels. The computer admin has an important role because it relates to reporting and updating data that must be sent to the relevant Education Office.

Figure 4. The discussion process for the activities implementers and the principal of the Al-Wahyu Kindergarten Surabaya

The school, both from the principal, administrative staff, and computer admins, very welcome the idea of implementing this student management system. This is in accordance with the problems they are experiencing. They hope that the implementation of this system can facilitate the management of student data at the school.

Application system (Software) applied
The application system applied in this activity is a web-based Student Data Management System at Al-Wahyu Kindergarten Surabaya. An overview of this system is shown in Figures 5 to 9.

As shown in Figure 5, the system displays student profiles, including name, gender, year of entry, city/district origin, and district origin. The system also makes it easier to see the data of each student in more detail. Of course, this student data continues to increase every year. So far, a large amount of student data (accumulated for years since the school started operating) is managed manually (paper and excel files), so it takes a long time to find certain students or track students who have passed so many years. Through this system, data can be easily managed related to searching or tracking students as well as making student reports needed by the school's internal

parties or other parties (especially the Management Foundation and the City and Provincial Education Offices).

Figure 5. Student profile

Figure 6 shows the mapping of student data by city/district and sub-district. Thus, school management can map the distribution of students from any city/regency and sub-district. This information is certainly important for the future development of the school. Figure 7 shows the mapping of student data by gender. While Figure 8 shows the mapping of student data based on the work of parents.
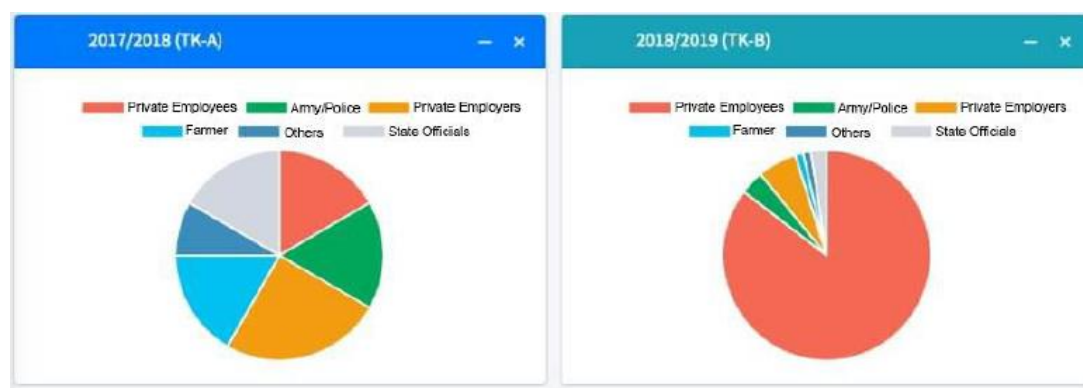

Figure 8. Mapping student data based on parents' occupation

Activity stage

The activity steps needed to realize the proposed solution include:
a. System Requirements Analysis

The analysis is carried out to identify technical needs in the field that must be met so that the software that will be implemented can run well.
b. System Customization

As with all application software in general, a software requires customization that is carried out according to the unique needs in the field (different from the general characteristics), especially related to the system user interface. After that, installation and operation can be carried out.
c. Server & network infrastructure setup

The software to be implemented requires server and network infrastructure for system installation and operation. Based on the field survey that has been carried out, the school already has servers and networks, although with limited capabilities and capacities. To run the software in this activity, these conditions are considered adequate, but several additional components are needed to improve its capabilities so that potential disturbances to the system can be reduced.

d. System Installation
    The software is installed on the server and accessed through the admin computer which will later operate the system.
e. Input Data to System
    Data that is still in the form of physical files (paper) and document / excel files need to be entered into the system, so that all information is stored in the system database.
f. System Operation Training and Assistance
    The activity implementation team provides training and assistance related to how to operate the system on computer admins, head of school, and assigned teachers. So that later the system can be run independently by the school.
g. Evaluation of obstacles that arise during the process of assisting the operation of the system.
h. Improvement of the system to overcome obstacles that arise and ensure the system can run according to plan.
i. Final evaluation to determine the effectiveness of system implementation.

Results and Discussion
Implementation approach

The approach method used to solve partner problems is process automation related to the management of student data. Student data is currently stored in the form of paper / books and partly in the form of document / excel files. The data management process is still done manually. Through a process automation approach, all manual processes are replaced with automated processes using a system (software/application program).

Activities implementation

Although the application system is quite reliable, if the users find it difficult to operate, then the software will not be useful. The activity implementation team is aware of this condition. The process of training and mentoring is a key factor in the success of software implementation, as carried out by the team implementing the activities in Figure 9. The training process related to the method or procedural steps for using the system has been carried out. The mentoring process is carried out to ensure users do not experience difficulties in operating the system.
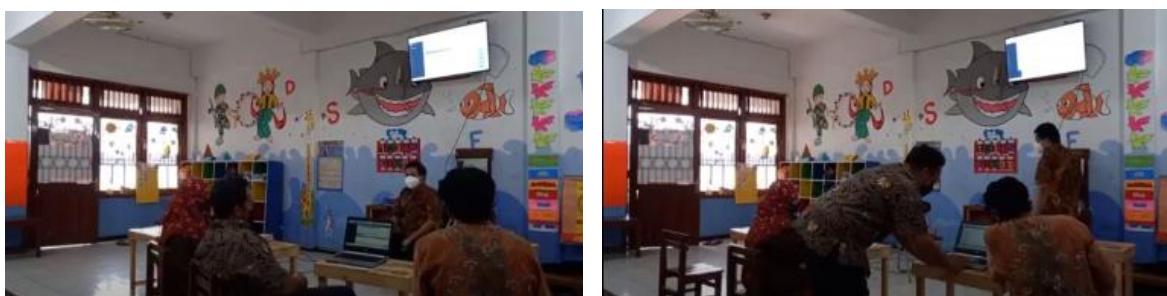

Figure 9. System operation training session and system data management assistance

The training and mentoring activities were carried out on Thursday, August 12, 2021, in one of the classrooms at the Al-Wahyu school Surabaya. The system user will be the head of school for system monitoring and computer admin for system operation and maintenance. Considering the situation is still a pandemic and the PPKM level 4 in Surabaya during the implementation of activities, this training and assistance only involves the head of school and computer admins who are directly related to the system. This training and mentoring activity is carried out offline, because the process of operating the system needs to be practiced directly with direct assistance in the field, so that they have the understanding and skills to use the system more optimally.

The mentoring process will continue after the training activities to ensure the system can run properly and there are no problems with the system. When later on the way there are problems, the process of repairing and perfecting the system will be carried out. The communication process with the school will continue to be carried out with the school, especially with the head of school and computer admin to monitor the implementation of the application system implementation in the field.

Based on the activities that have been carried out, the installation of the application system and the mentoring process for school administrators and administrators for the operation of the system have been carried out according to the plan. The school is very enthusiastic about the implementation of this system and it will be used to support data management and reporting to the City and Provincial Education Offices.

For TK Al Wahyu Surabaya, the application of this system is a new breakthrough for schools that were previously accustomed to manual work into a faster and more effective software-based way of working.

Sustainable program

As application systems in general, the maintenance and development process needs to be carried out on an ongoing basis. The development of operational activities, which usually have an impact on data changes, as well as the increasing demand in the field which is always dynamic, of course, further development of application systems needs to be carried out in the future. Likewise in the Al-Wahyu Kindergarten school, there could be many changes in conditions in the field that require the development of systems that can adapt to these changes. Therefore, a sustainable program will be carried out in the future. The team implementing this activity will not stop at the installation and operation of the system that has been carried out, but the team will monitor and support the development of the system, so that the system can continue to run well in the long term to encourage TK Al-Wahyu Surabaya to move forward in the future.

Conclusion

Based on the activities that have been carried out, the conclusion obtained is that the Student Management System has been implemented in TK Al-Wahyu Surabaya. This system is a solution to the problems experienced by the school related to manual data digitization. The school is very enthusiastic about this activity and will actually operate the system to improve the efficiency of student data management. To ensure the sustainability of the Student Management System, it is important to carry out a sustainable program so that the system that has been implemented will not only have a short-term impact, but also a long-term impact on the progress of the school.

The Student Management System that has been implemented at Al-Wahyu School Surabaya certainly has its drawbacks, along with the development of the school's operational processes in the field. So that the addition of system facilities needs to be carried out in the future in accordance with the development of needs in the field, so that the system can continue to be used in the long term.

Acknowledgment

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