Simtenismeja.com Features as an Information System in the Implementation of Table Tennis Matches

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Abstract. The application of Information Technology has helped many business processes in various fields. Table tennis as a sport still has many problems. The process of implementing the match up to now still relies heavily on manual methods. The use of computers in the competition is still limited to documentation. Match schedules, match charts and validation of participants are examples of problems that make it difficult for the competition committee. Simtenismeja.com is an application that has been developed to overcome the above problems. This system is based online, so all processes can be done anytime and anywhere using all possible devices. This application has facilities for recording data on participant athletes, preparation of schedules and charts of matches automatically, and recording and publication of results of matches. This system has been implemented in a table tennis match. User responses have been recorded to show whether the system is proven to make it easier to do table tennis matches or not. The response test results state that all buttons, interface pages, and menus can function properly. The next process is comparing the implementation of matches manually with the implementation of matches assisted by simtenismeja.com application. In general the use of applications in matches is much more efficient in terms of time and accuracy.

1. Introduction
Table tennis is a popular sport in the world. This can be seen by the inclusion of table tennis as a sport that is contested in the Olympics. The very rapid development of table tennis through these championships made the number of participants even more so that the organizers or organizers of the game worked extra especially in terms of making the match system schedule. Ricky Aditya in the Journal of Mathematics and Science (2013), said that a good match scheduling method will affect the quality of organizing a sports tournament. According to Sonia et al. in Ejournal UNY (2015), competition issues cause table tennis athletes to tend to have high levels of anxiety before competing. According to Wasul Mualip et al. in UNY's E-Journal (2013), making a match system model is very important to do to help smooth the implementation of the match.

2. Simtenismeja.com Features
Some things in table tennis matches that must be prepared include the match schedule, match table, match chart, referees, referees, score papers, match reports and match athlete data. Making schedules, charts and match reports are the most difficult things to do. If the number of participants in a match exceeds 100 athletes, preparing a schedule and chart manually requires a lot of time and accuracy to avoid mistakes. After finishing the competition, the committee still has to report the results of the match per table. The hassles can be easily overcome using information technology.
Simtenismeja.com is an application that has been built to overcome the above problems. The application has several special features. The first feature is managing matches. To use this feature, application users must specify the date, start time, end time, rest time, number of tables, and duration of the match from the preliminary to the final. For more details, consider Figure 1 below.

After changing the configuration of the match feature, the user must set which athletes will be involved and or must be removed from the match. Furthermore, the user can access the match schedule feature. In this feature, users can choose the athlete to be seeded. The application does not limit the number of seeded, although in a good match system the maximum number of seeded is 4 athletes / team. The next process is generating a schedule. As a result, the game schedule will appear in 2 formats, which are the sequential schedule format from the earliest and the match chart format. Both formats can be printed and enlarged to be pasted on the bulletin board. In addition, athletes who compete can also access the schedule as a general user at www.simtenismeja.com.

After the schedule has been generated, the results can be seen in Figure 3. The figure shows the overall schedule of the match by displaying the date, time, table, round or round that is being passed along with the athlete involved.

Figure 1. Match Feature

Figure 2. Arrange Match Schedule
In this interface, the match table committee can input the match results using the action button located on the right in each row of the match schedule. The score that has been inputted can be seen by anyone and at any time at www.simtenismeja.com. The form for inputting match results is shown in Figure 4.

3. Research Method
The information system built in this article refers to the Research and Development method in Pressman (2012). This paper discusses the superior features of the application by proving whether the application of the system shows far better results compared to the manual way, in terms of time, data accuracy and accessibility.

Features discussed include: athlete / team data input, manage matches, set match schedules, input match results, and report match results. Comparison of the application of the match process between the manual and the application is limited only to the superior features above. Data was taken directly at a match using direct observation and interviews.

4. Results
The results of observations and interviews in the process of implementing the match with 50 participants of the match are presented in the following description. At the game registration stage, there is no significant difference between manual registration and application use. The only difference is the
amount of paper used in manual registration, while the application does not require paper at all, but requires a gadget and internet access.

At the stage of organizing the match, the system requires the same time and accuracy in the manual way. Manually, arranging matches is only stated and written down on a piece of paper to be agreed upon by all parties. This manual process is also carried out by the system that is inputted into the match management form.

Table 1. Comparison of the Process of Matching the Match between the Manual and the System

| No. | Stages for 30 participant | Time Needed          | Accessibility     | Data Accuracy |
|-----|--------------------------|----------------------|-------------------|---------------|
|     |                          | Manual | System | Manual | System | Manual | System |
| 1   | Registration             | 5 minutes | 2 minutes | offline | internet | 60%-90% | 99%    |
| 2   | Making a Competition     | 10 minutes | 3 minutes | offline | internet | 100%   | 100%   |
| 3   | Arrange a match          | 30 minutes | 10-15 minutes | offline | internet | 100%   | 100%   |
| 4   | Making a match schedule  | 5-12 jam | 2 minutes | offline | internet | 60%-90% | 100%   |
| 5   | Making a match chart     | 1 jam | 2 minutes | offline | internet | 60%-100% | 100%   |
| 6   | Input result of a match  | Depends on a match duration | Depends on a match duration | offline | internet | 100%   | 100%   |
| 7   | Report result of a match | 30 minutes | 1 minutes | offline | internet | 100%   | 100%   |

At the stage of setting the schedule, the system can do it quickly. After entering the match participants and determining the player's seeded, based on the match management form, the system can quickly (only 2-5 seconds) create a match schedule as well as create a match chart. Meanwhile, manually, the committee made a chart of the match based on the number of participants. Then participants will be drawn to be included in the chart. After all participants have entered, the next step is to schedule a match. Manually, the process of drawing and entering participants requires 2-3 hours. To create a match schedule, the committee takes 5-12 hours with several checks to ensure no errors occur.

After the chart and schedule are finished, the next process is the implementation of the match. All process of recording the match is done manually by the referee using a score sheet. When reporting the results of a match, a manual process is carried out by rewriting results to the chart and schedule of the match. Whereas the application process is done by inputting a score sheet into the system. The results of the match can be accessed by all relevant parties via the internet and the updated chart of the results of the match can be reprinted by the system. A summary of all processes through observation and interviews can be seen in Table 1.

5. Conclusion
Based on the results and discussion above, it can be concluded that the system is much faster, more accurate, and wider in scope compared to the manual system. By implementing the system, the implementation of table tennis matches is expected to be carried out well.
6. References

[1] Aditya, Ricky, Suatu Metode Penjadwalan Pertandingan yang “Baik” untuk Kompetisi Liga Sepakbola Menggunakan Persegi Latin, Jurnal Matematika dan Sains, Vol. 18 No. 1, April 2013.

[2] Mualif, Wasul, dkk., Penyusunan Model Pertandingan Berbasis Komputer pada Cabor Pencak Silat, E-Journal UNY, PKO-S1, Vol 1 No. 1, Mei 2013

[3] Pressman, Roger S. (2012). Rekayasa Perangkat Lunak. Yogyakarta: ANDI OFFSET.

[4] Sonia, dkk., Tingkat Kecemasan Atlet Cabor Tenis Meja Sebelum Menghadapi Pertandingan di Kejuaraan Nasional di Semarang 2014, E-Journal UNY, PKO-S1, Vol 1 No. 1, Maret 2015