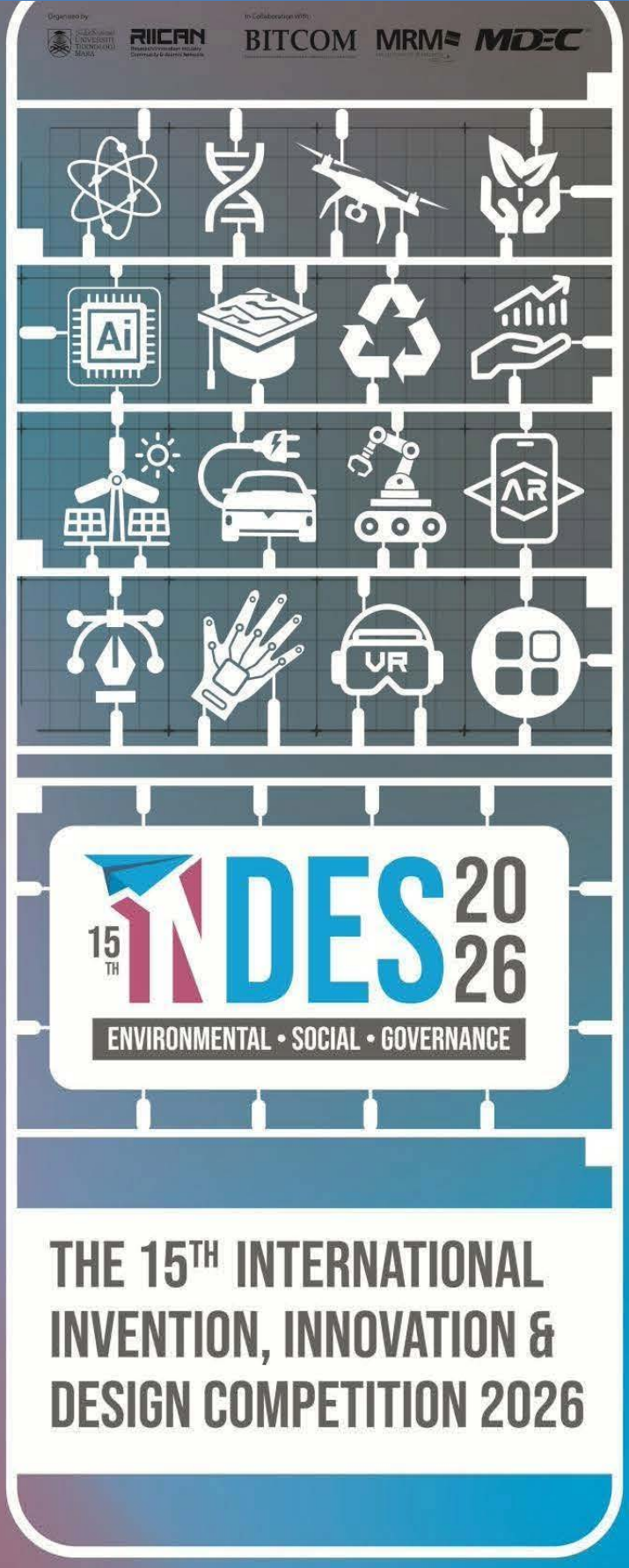

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THE 15th INTERNATIONAL
INVENTION, INNOVATION &
DESIGN COMPETITION 2026

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Office of Research, Industry,
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HAFAZTRACK PRO: A SMART DIGITAL DASHBOARD FOR MONITORING QURANIC MEMORIZATION AMONG TAHFIZ STUDENTS

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ABSTRACT

Monitoring students' hafazan (Quranic memorization) progress is a crucial aspect of tahfiz education to ensure a consistent and well-managed memorization process. Although the ASIS system is currently used to record students' hafazan progress, the data are often presented in lengthy tabular formats that are not visually intuitive, making it difficult for teachers to identify individual progress and observe memorization trends over time. This study introduces HafazTrack Pro: a Smart Digital Dashboard for Monitoring Quranic Memorization among Tahfiz Students, an innovative system-based data visualization platform designed to support systematic and efficient monitoring of hafazan progress. The dashboard prototype was developed by UiTM lecturers based on hafazan records of eleven selected students from SMTDR Lenggong, Perak, all under the guidance of a single halaqah teacher. The data were extracted from the ASIS system and transformed into Google Sheets before being integrated into the dashboard system for visualization and analysis. Two UiTM lecturers, representing the fields of Mathematics and Computing Science, served as technical developers and advisors, ensuring the functionality and effectiveness of the system. Meanwhile, two Quranic teachers (ustaz) acted as content advisors by providing insights into hafazan monitoring requirements and validating the dashboard design. The developed prototype was evaluated by two student users and two Quranic teachers, where the students assessed the usability of the dashboard, while the teachers evaluated its suitability for hafazan monitoring. Their feedback was incorporated through an iterative improvement process to enhance the system's functionality and effectiveness. The dashboard presents key information through visual elements such as progress graphs, juzuk completion indicators, and performance summaries, enabling clearer interpretation for both teachers and students. This innovation is expected to enhance the effectiveness of hafazan monitoring and promote a more systematic, efficient, and user-friendly approach in tahfiz education.

***Keywords*:** dashboard; hafaztrack; tahfiz students; quranic memorization; hafazan monitoring

1. INTRODUCTION

Quranic memorization (hafazan) is a core component of tahfiz education, contributing to both spiritual and cognitive development among students. In Malaysia, schools such as Sekolah Menengah Tahfiz Darul Ridzuan (SMTDR) Lenggong, Perak, implement a Kurikulum Bersepadu Tahfiz (KBT) approach (Ministry of Education Malaysia, 2020), where students memorize the Quran in a structured, one-part-at-a-time method (Saad et al., 2023).

Each year, students follow a predetermined syllabus called muqarar, which specifies the surahs or sections to be memorized, ensuring that hafazan is conducted systematically and consistently. Under this system, students are required to complete all 30 juzuk of the Quran over the course of their tahfiz education. Students' progress is monitored day by day, week by week, and month by month, with records maintained in the ASIS system. This enables teachers to track individual achievements, understand memorization patterns, and provide timely interventions for any delays or difficulties (Aryaman et al., 2024). However, in practice, ASIS primarily presents data in long tabular formats, which can be difficult to interpret quickly. With large numbers of students to monitor, teachers may struggle to identify trends, detect delays, or make timely instructional decisions. This reveals a gap between the need for efficient monitoring and the limitations of the existing system (Chen et al., 2021).

To address this gap, this study introduces HafazTrack Pro, a smart digital dashboard designed to enhance the monitoring of Quranic memorization among tahfiz students. HafazTrack Pro integrates visual analytics, including progress graphs, juzuk achievement indicators, and performance summaries, offering a more interactive and user-friendly interface for teachers (Aryaman et al., 2024). Unlike ASIS, HafazTrack allows teachers to visualize trends, detect issues early, and plan interventions more effectively, thereby filling the gap in current monitoring practices.

The objectives of this study are to:

1. Develop a smart dashboard prototype for monitoring tahfiz students' hafazan progress.
2. Visualize students' hafazan data through progress graphs, juzuk achievement indicators, and performance summaries.
3. Evaluate the usability, suitability, and effectiveness of the prototype through feedback from teachers and students.

The dashboard prototype was developed by UiTM lecturers using hafazan records of eleven selected students from SMTDR Lenggong, Perak, who were supervised by one halaqah teacher, with collaborative input from two UiTM lecturers, two ustaz, and two students, ensuring functional suitability, visual effectiveness, and practical relevance. By leveraging digital visualization, HafazTrack Pro aims to streamline the monitoring process, facilitate early intervention, and support a more structured and efficient learning experience for tahfiz students following the KBT muqarar syllabus.

2. METHODOLOGY

Figure 1 shows the conceptual flow of the study method. This study employed a prototype development approach to design HafazTrack Pro: Smart Dashboard for Monitoring Quranic Memorization. Hafazan progress data were obtained from the ASIS system, using records of eleven selected students from SMTDR Lenggong, Perak all of whom were under the supervision of a single halaqah teacher. The prototype development involved two UiTM lecturers, two ustaz (halaqah teacher), and two students, who contributed to assessing visualization needs, functional suitability, and dashboard usability. Hafazan data were presented through progress graphs, juzuk achievement indicators, and performance summaries, facilitating more systematic and efficient monitoring.

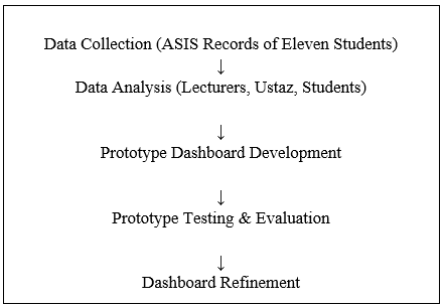

Figure 1 Conceptual Flow of Study Method

The development process was conducted iteratively, with feedback from teachers and students used to refine the dashboard design. This method allowed the dashboard to be evaluated in terms of visual comprehension, ease of use, and effectiveness in monitoring hafazan progress before wider implementation.

Description of Each Step:

1. Data Collection – Hafazan progress records of five students obtained from the ASIS system.
2. Data Analysis – Assessment of visualization needs and memorization patterns by lecturers, ustaz, and students.
3. Prototype Development – Creation of a dashboard featuring progress graphs, juzuk achievement indicators, and performance summaries.
4. Testing & Evaluation – Feedback from teachers and students used for iterative improvements.
5. Dashboard Refinement – Finalized dashboard ready for wider implementation.

This flow chart illustrates an iterative and user-centered approach, ensuring that HafazTrack Pro is functional, visually effective, and suitable for monitoring Quranic memorization efficiently.

3. EXPECTED OUTCOMES

Figure 2 illustrates the HafazTrack Pro mock-up dashboard. The HafazTrack Pro: Smart Dashboard for Monitoring Quranic Memorization is expected to provide several key benefits. First, it enhances teacher monitoring by enabling teachers to systematically and efficiently track students' hafazan progress, with easy access to individual student data. Second, it improves student awareness and motivation by allowing students to better understand their memorization performance through visualized progress graphs, juzuk achievement indicators, and performance summaries.

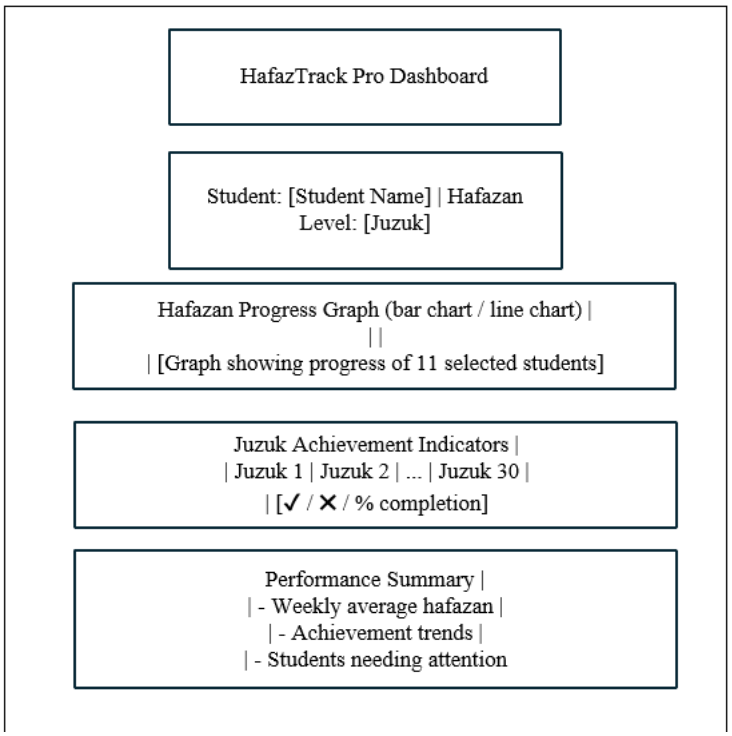

Figure 2 HafaTrack: Mock-up Dashboard

Third, HafazTrack Pro serves as an interactive platform that helps teachers and students identify memorization trends and focus on students who require early intervention. Finally, it provides insights into teaching

effectiveness by offering a clear overview of the hafazan teaching and learning process, thereby supporting the integration of digital technology in tahfiz education.

The HafazTrack Pro dashboard is designed as a visual and interactive platform for monitoring hafazan progress. It presents key information through several components: (i) student information, including name and current hafazan level (juzuk); (ii) hafazan progress graphs, displayed using bar or line charts; (iii) juzuk achievement indicators, showing completion status for all 30 juzuk; and (iv) performance summary, which includes weekly hafazan averages, achievement trends, and identification of students requiring attention. This design facilitates efficient monitoring, supports early intervention, and enhances student motivation in tahfiz education.

4. CONCLUSION

HafazTrack Pro: Smart Dashboard for Monitoring Quranic Memorization demonstrates a practical and innovative approach to enhancing the monitoring process in tahfiz education. By integrating visual analytics, progress graphs, juzuk achievement indicators, and performance summaries, the dashboard enables teachers to track student progress more systematically and efficiently, while supporting students' awareness and motivation. The iterative prototype development and evaluation with teachers, ustaz, and students ensured the dashboard is user-centered, visually effective, and functionally suitable.

Overall, HafazTrack Pro addresses the limitations of traditional systems such as ASIS by providing an interactive and transparent platform for early intervention, trend identification, and performance management. This innovation has the potential to improve teaching effectiveness, support digital learning, and streamline the hafazan process, making it more structured, efficient, and engaging for both teachers and students.

REFERENCES

Saad, M. F. M., Ataa, N. S. M., Mohamad, S., & Ishak, H. (2023). Analisis elemen KBAT dalam dokumen standard kurikulum dan penilaian (DSKP) Hifz al-Quran di bawah kurikulum bersepadu tahfiz (KBT).

Ministry of Education Malaysia. (2020). *Kurikulum Bersepadu Tahfiz (KBT) syllabus*. Putrajaya: Ministry of Education.

Aryaman, M., Sharma, R. K., & Jain, S. (2024). Interactive Dashboard for Student Analysis.

Chen, C. M., Wang, J. Y., & Hsu, L. C. (2021). An interactive test dashboard with diagnosis and feedback mechanisms to facilitate learning performance. *Computers and Education: Artificial Intelligence*, *2*, 100015.

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