

AQUAFINA: Streamlining Collaboration, Meet Management, and Performance Prediction in Swimming

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Swimming is a prominent sport in Sri Lanka with a significant number of school, university, and open-level swimmers participating in competitions. However, the management of these events faces critical challenges, due to outdated manual processes. Current systems rely on physical form submissions, in-person payments, and delayed access to meet schedules and heat assignments, with limited integration of performance data. This study introduces AQUAFINA, a comprehensive digital platform designed to address these inefficiencies and enhance athlete management. AQUAFINA aims to automate meet registrations, facilitate online payments, and provide real-time access to meet schedules and heat assignments. Additionally, the system incorporates a machine learning-based performance prediction tool, utilizing historical performance data, physical metrics, and training records to forecast swimmer results, and facilitates a collaboration platform for swimmers and coaches to interact with each other. This integration addresses gaps identified in existing literature, which highlights the limitations of current systems in performance prediction, swimmer-coach collaboration, and comprehensive meet management. Methodologically, AQUAFINA employs a web-based platform integrating these features, with an emphasis on improving efficiency, transparency, and collaboration. In conclusion, AQUAFINA provides a comprehensive, data-driven solution to improve the efficiency of swimming competition management and swimmer-coach collaboration for swimmers of all levels in Sri Lanka.

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