

UNIVERSITI TEKNOLOGI MARA

**ALGORITHMIC BOOTH RECOMMENDER
SYSTEM WITH INTERACTIVE MAP
VISUALIZATION**

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This thesis was prepared under the supervision of the project supervisor, Adib bin Sarkawi. It was submitted to the Faculty of Computer and Mathematical Sciences and was accepted in partial fulfilment of the requirements for the degree of Bachelor of Computer Science (Hons.).

Approved by

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Adib bin Sarkawi

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ABSTRACT

The manual and first come first served systems for allocating booths are prone to disadvantages for vendors who register late, and are not particularly helpful for determining the suitability of booths, space conditions, or booth availability. The goal of this project was to develop an Algorithmic Booth Recommender system for a fairer, more transparent and efficient booth selection process for vendors with Interactive Map Visualization. The web-based prototype used required-criteria filtering and a Normalize Weighted Sum Model to rank the available booths relative to three types of criteria: the vendor's preference, booth attribute and selected spatial criteria. It also included a list of recommended, unavailable and excluded booths on an interactive-map, warning about adjacency conflicts, and booking and admin support of booths. The system has been developed by agile approach and tested by functional testing and a questionnaire on the usability filled up by 83 respondents. All key functions were functional tested: Vendor registration, preference submission, generation of recommendations, ranking booths, displaying map, booking, conflict detection and reporting. The recommendation engine produced 364 records between the range of 20.00% to 100.00% with an average of 78.35%. The mean score for usability evaluation was 4.45 of 5.00 and the score agreement for usability evaluation was 94.7%. The ease of use of the interface had the highest rating of 4.59 and 100.0% were in agreement, followed by overall satisfaction rated 4.53. The results demonstrated that the prototype met all project objectives and could decrease the need for manual comparison and increase the clarity, confidence, perceived fairness and decision support in the selection of a booth. Future development should be in the direction of making the scores more explainable; validation of criterion weights; enhancement of the spatial conflict modelling; use of a production database; and testing in real events.

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