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Adaptive UI Wireframe Generation

A dissertation by

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ABSTRACT

Requirements of a software product establish the foundation for the scope, time estimation, cost, design, quality, and performance of the final product. Proper understanding of the project requirements makes it easier for stakeholders to have realistic expectations about the final product. The final product should be aligned with the software requirement specification document in terms of functionality, performance, and design. Incomplete and ambiguous customer requirements are the major causes of the failure of software projects. To avoid conflicts between requirements and implementation, the given client requirements should be properly validated in the early stage of the project.

Prototyping is an effective and efficient way of validating requirements, as it presents the shell of the actual system to be built. Wireframes are low-fidelity prototypes that are used to communicate design and the abstract idea of functionality to stakeholders. Wireframes are usually developed manually by business analysts or UX engineers from gathered and elicited requirements. Manually developing wireframes requires additional effort, which affects the time estimation and cost of the project.

This research aims to design, develop, and evaluate an application that can be used to automatically generate a user interface (UI) wireframe for a given field specification of a user story within a short period of time for web-based applications to validate requirements. The issues that are raised due to manual wireframe design could be eliminated by this approach. Due to that, the workload of the business analyst or UX designer can be reduced, and it will benefit in terms of time and cost management of the project. The requirement validation can be carried out easily and faster since the wireframes can be generated within a short period of time to get the verification from the stakeholder regarding the requirement. This research expects to fill the gap of not having a proper automatic way to generate a UI wireframe that is aligned with the requirement in a short time period.

Keywords: Requirement, Requirement Validation,UI Wireframe, Wireframe Generation, Field Specification, User Story, Natural Language Processing, Information Extraction

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