

**AN APPROACH TO AUTOMATE A MODIFIED
HEURISTIC EVALUATION METHOD FOR ASSESSING
USABILITY OF WEBSITES**

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Declaration

I declare that this thesis is my own work and has not been submitted in any form for another degree or diploma at any university or other institution of tertiary education. Information derived from the published or unpublished work of others has been acknowledged in the text and a list of references is given.

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Supervised by

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Signature

Date:

Mrs. G.T.I Karunaratne

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Signature

Date:

Dedication

I dedicate this work to my parents.

Acknowledgement

I would like to acknowledge the continuing guidance and support by my supervisors, who are Dr. C.D. Gamage and Mrs G.T.I Karunaratne, which has made the conduct and completion of this study possible. I would like to thank my parents for the support they gave to complete this work on time. I would also like to acknowledge the support provided by the staff of the department of Computer Science and Engineering, University of Moratuwa, who generously offered their help in numerous ways.

Abstract

There has been a growing tendency towards greater usage of websites over the last few decades. This has resulted in a need to ensure better usability of these web sites. However, as some of the usability tests on web sites were either technology dependent, such as conformity to a particular web standard or application dependent, such as web sites built for news organizations, it was difficult to conduct a more general form of usability tests on websites. As a solution to this problem, researchers have developed various algorithms for assessing usability of websites in a more generic manner. However, as these evaluation schemes required the manual application of such algorithms, this exercise has turned out to be a tedious and time consuming task.

The research presented in this thesis had been conducted to develop an automated solution for the evaluation of usability of websites. It is hypothesized that automation of heuristic evaluation of web sites can be done by web page parsing with CssParser and Jsoup libraries. The solution takes web pages and CSS files saved on disk as inputs and produces a report of usability issues as the output.

Once the input set of web pages is provided, the automated solution developed in this research extracts certain attribute values from the saved CSS files and checks them against a set of predefined values. Based on the results, the usability problems are identified, and displayed as a report. The system developed is intended to be used by user interface designers, during the software interface design phase.

By using the web site usability solution developed in this research, web designers will be able to improve their designs after identifying the usability problems in user interfaces. The overall design of the solution include three modules, namely

the user interface module, evaluation engine module and a database of evaluation parameters. These modules were developed using the Java language and the overall system has been implemented to work in a platform independent manner.

The proof-of-concept of the automated solution for web site usability evaluation has been tested by considering 8 sample websites. The evaluation results shows that the developed scheme can evaluate the websites with an average accuracy of 67% while taking less than 30 seconds for evaluation. This clearly shows the utility of the developed system as an initial filter to identify web site designs with significant problems in their usability.

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