ADAPTIVE USER INTERFACE BASED ON THE USER DEMOGRAPHY AND BEHAVIOUR

Malmalabaduge Ishan Udeshka Fernando

A dissertation submitted in partial fulfilment of the requirement for
Master of Science (Honours) degree in Advanced Software Engineering

Department of Computing

Informatics Institute of Technology, Sri Lanka
in collaboration with
University of Westminster, UK

2021

Abstract

Even though wide range of user groups use the web applications, most modern websites are purely focused on the set of user group while excluding the other user groups. But the question is when comes to the e-commerce like domain the audience can be wide and the demography also wide range and does it optimized to fulfil the specific user group need?

In most of the scenario, the website shows the same layout with the same font size, colour and attributes which may not match the users need. Therefore, the personalization based on the users need become a must require and the Adaptive UI framework will help to do that task easily.

Adaptive UI framework mainly fulfils two task one is to adapt based on the demography and the adapt based on the user behaviour. Demography adaptation was done by asking a few questions from the user in the initial load and give few profile suggestions to users and change the overall layout based on that. This suggestion did base on the previously available data and used the clustering technique to identify the matching clusters. Behaviour adaptation will change the overall layout structure by calculating the fixation and dwell time for each component and rearrange each component based on the priority to easily access. The main flexibility of the framework is developed can decide which elements need to adapt and which need to keep as it is. This will eliminate the layout break issue which currently most of the framework has. Also the colours, font size, layout adaptation result provided by the framework in satisfied level and match with the user expectation and SUS of the framework also in Good level which indicate most of the users can able to use the system without any issue.

Keywords: User Experience, Adaptive User Interfaces, User behaviour Analysis,HCI