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SIMPLIFIED COMPUTER-AIDED DESIGN SOFTWARE FOR MASS CUSTOMISATION

A thesis presented in partial fulfilment of the requirements for the degree of

Master of Engineering
in
Mechatronics

at
Massey University, Albany,
New Zealand

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2014

1.0 Abstract

The advent of 3D printers has created a demand for products that are individually customized to satisfy a user's needs. Currently, there are no software tools for intuitively customising a part or object, suitable for printing with a 3D printer. Most Computer-Aided Design packages require substantial user training, and are prohibitively expensive.

There is a market gap for a product that allows a user to customise a product to their own tastes, with no knowledge required for how the product works or how its parts fit together. Instead of forcing a user to wholly create a product model, they should be given a working model of their desired product and the tools to customise it. They should be able to do so without needing any of the skills or expertise of a professional designer or engineer.

For this project, Existing CAD software was investigated to find their markets, their features and their advantages and drawbacks. No software was found that would entirely address the needs identified above.

A proof-of-concept piece of software was written that demonstrates simple modifications to single parts through the clicking and dragging of faces. The resulting customised part can then be saved in a format suitable for 3D printing.

The proof-of-concept software succeeded in being simple enough for an untrained user to be able to intuitively customize a part, and several features were identified that would need to be implemented for a release version.

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