

A Study of HCI and UI Concepts to Develop a Bespoke Stock Management System for a Kickboxing Academy

Introduction

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This project involved developing a bespoke stock management system (SMS) for the owner of a local kickboxing academy, they sell a variety of sporta apparel and equipment.

To create a good SMS, knowledge was obtained about the stock management process, Human Computer Interactions (HCI) concepts, and the concepts behind making an effective user interface (UI).

The kickboxing owner suffers from Carpel Tunnel Syndrome (CTS) they specifically suffer with numbness in the hands. The system had to be designed with the client's limitations at the forefront.

The aim for this project was to understand what makes a good user interface and develop one that aligns with the client's requirements. To achieve this aim, a set of objectives were created. Below are the objectives for the project.

- Conduct research into HCI, and UI design.
- Determine the client's requirements.
- Apply HCI and UI rules to the system design.
- Develop the system with good UX integration.
- Test and evaluate the system.

HCI

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Human Computer Interactions (HCI) is a multidisciplinary field of study that focuses on how users interact with computer technology. HCI is built up of three main overlapping principles: Computer science, cognitive science, and human factors engineering.

HCI concepts that were explored include consistency, usability, and task oriented design. More specific research had to be done to make the system accessible to the school owner as they suffer from Carpel Tunnel Syndrome which

UI Design

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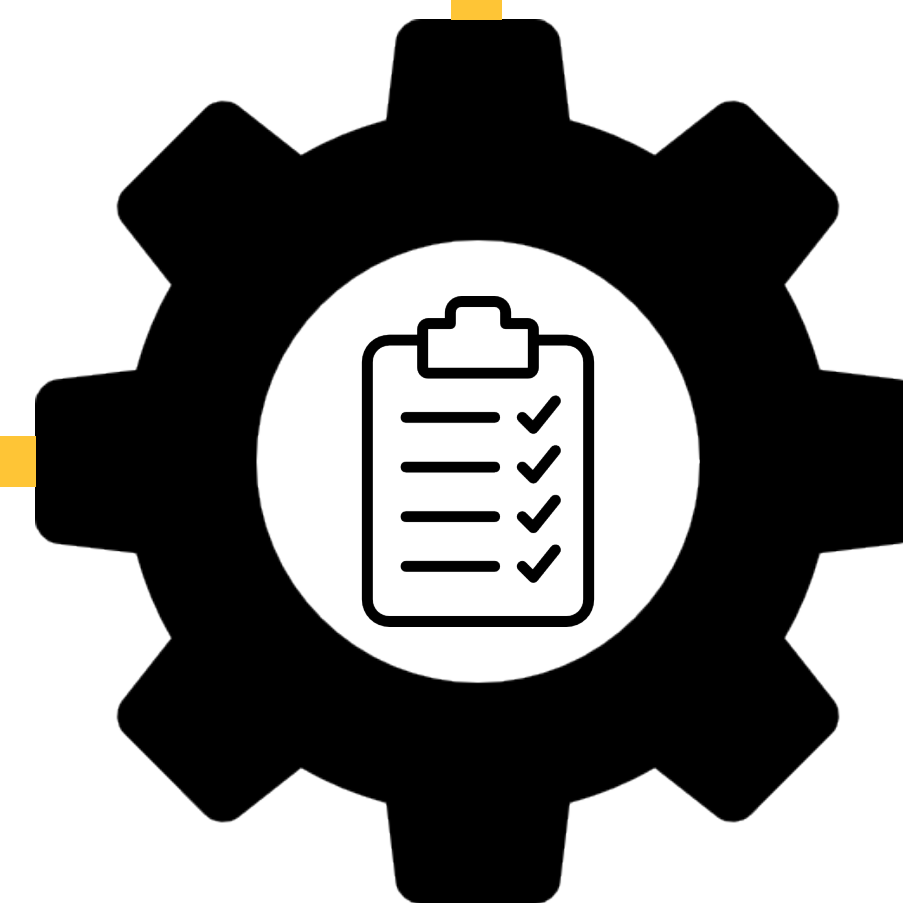
During the initial discussions with the client, it was quickly noted that the main issue they had with existing stock management systems was their overly complex user interfaces.

To interact with the stock management system, the client will use a graphical user interface (GUI) which will allow them to view, add, and remove stock items from the system.

The GUI design will be "invisible" meaning that it will not be intrusive and pull the user's attention away from the task they are trying to complete. To make the workflow as easy as possible for the client, a simple and intuitive GUI was to be developed.

The client's brand colours were used throughout the system, this was done to make the system appear familiar to the client. It also makes the system more approachable. Drop shadows were used on elements such as buttons and form fields, while drop shadows are being phased out they still have some use in adding a slight bit of depth to the system.

Screenshots of the complete system can be seen below. Login page (Bottom Left) stock table (Below) add stock form (Bottom Right)



Development and Evaluation

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The system was web based and developed using a combination of languages and technologies such as HTML, CSS, JavaScript, PHP, PHPMyAdmin, and Xampp.

To determine the system requirements two interviews were held with the client. The first interview involved a discussion of features while the second one focused on the appearance of the system. Once the requirements were determined, development began. A series of wireframes and mock-ups were created, these were shown to the client for feedback.

After achieving an acceptable UI design, work began on the functionality of the system. ERDs and flowcharts were developed then coding could begin! The agile development method was used, this allowed me to show the system to the client and make any changes depending on the client's feedback.

Once the system was complete, it was shown to the client and a series of tasks were asked of them to complete, these included adding, deleting, and editing stock items. The client was offered no assistance in completing these tasks to get more accurate feedback of the system's ease of use.

General feedback about the experience and appearance of the system was gathered after the client had completed the tasks via a short discussion.



Sign in

Username:

Password:

Login

Stock Table

Add Stock Logout

Stock ID	Name	Type	Size	Colour	Quantity	Action
38	Gloves	Points	Medium	White/Grey	10	Delete Edit
39	Headguard	TopTen	Large	Red	15	Delete Edit
40	Kick Pads	Points	Small	Blue	20	Delete Edit
41	Kick Pads	Points	Medium	Red	15	Delete Edit

Name:

Type:

Size:

Colour:

Quantity:

Submit