Design and Development of a Computerised Ration Shop for Public Distribution System in India

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Abstract:

India is the 2nd fastest growing population in the world. So, it is the responsibility of Indian government to provide food security to India. Food security means availability, accessibility and affordability of food to all people at all times. Hence, there is need for Public Distribution System (PDS). In current scenario, there is lot of communication gap between public and PDS system of government, which leads to smuggling of food grains from fair price shops to black market and the public. The aim of the project is to design and develop a computerised mobile ration shop with safety features and ergonomics for the benefit of the public.

The design process started with detailed background study about ration shops and product context study in Indian scenario. A customer survey was conducted to understand the basic needs of the end users. Data collection was carried out by adopting methodologies such as literature review, product study, market study and product environment study. Ergonomic study was conducted for deciding product parameters and user interface. Product Design Specification (PDS) was generated from the customer voice using Quality Function Deployment (QFD). Concepts were generated with respect to the derived PDS. Various issues and needs identified through data collection have been addressed in developed concepts. Ideation sketches for interiors were developed by considering the new features like storage, aesthetics and ergonomics. Digital models of the finalised three concepts were made using Alias studio tools. Final concept was selected by the weighted ranking method from the user. Mock-up model of the final concept was made in 1:12 scale.

Design was made with safety features and ergonomics. Through finite element analysis, it was ensured that the chassis will withstand the loads acting on the vehicle. The new product designed can solve the problems faced by the user to certain extent in Indian Market.