



Hand Held Ticketing Device



Our Client

An OEM who mainly catered to various state transport corporations and various private transportation agencies.

Why they needed us

They wanted to embrace the Digital India initiative and provide Hand Held Ticketing Devices to their customers. Since they lacked the specific knowledge related to digital field needed for such a device, they approached us to design and test such a device. They handled the manufacturing and assembly.

What we did

We did a literature and patent study and survey to learn about the latest designs and technologies in use to come up with a list of features and their implementation/production costs which allowed our client to choose the features that they wanted to offer.

The comprehensive list of features and functionalities incorporated by us into the finalized product is as follows:

- Fingerprint Readers to authenticate the ticket issuing authority.
- Support for multiple payment options such as Credit/Debit cards, UPI etc.
- Use of 2 inch thermal printer for printing the tickets
- Long lasting 4000mAh Li Ion Battery, for continued use
- Quick Charging capabilities using USB Type – C for faster recharge times.
- IPS LCD Display with Scratch Resistance of up to 6 in the Mohs Scale of Hardness, Anti-Glare and Anti-Fingerprint capabilities.
- Ambient Light Sensor for Auto Brightness Adjustment to ensure even longer battery run time.
- SOS option for Emergency situation such as fire or accident.
- Value Engineering to minimise product cost

The list of processes and methodologies used for design, analysis and testing are as follows:

- CAD modelling using SolidWorks and Simulations using Ansys.
- Transient Thermal Analysis to calculate Thermal Stress due to extreme weather conditions and heat from processor.
- Static and Dynamic Structural Analysis by factoring in the Thermal Stresses previously calculated while also accounting for Impact Loading under various circumstances.
- Material selection by iterating simulations and cost analysis on different material choices.
- Working prototypes built using 3D Printing to get feedback about various physical aspects such as ease of handling the device – weight, grip to hold etc.
- User Experience Prototypes built using 3D Printing to get feedback about various functional aspects such as the visibility of screen under various lighting conditions etc.
- Generating Configurable Bill of Materials for Engineering, Manufacturing and Assembly and 2D Engineering Drawings to help our client in manufacturing and assembling the product.
- Comprehensive testing of manufactured product through Destructive and Non Destructive
- Testing Methods to check for Structural Integrity, Charging Time, Connectivity Issues under various conditions, Running time on one full charge etc.
- Technical documentation of Operation and Service Manual for the Product.

How they benefited

Our Client was able to utilize their in-house, state of the art, manufacturing and assembly capabilities to deliver the product that they wanted, without having to develop a diverse set of skills and knowledge required to design and document the product.

This reduced their time-to- market thereby giving them a head start in this sector.

About Redeem Systems

Redeem Systems is a pure-play Engineering and Digital Services Company with focus on mission critical highly engineered + high availability systems. Our global presence spans Asia-Pacific, Middle-east, Europe and North-America.

Our focus verticals include – Tele-communications, Medical Electronics and Aerospace & Strategic Electronics.

Our Product Engineering competencies include Product Design and Development, Verification & Validation, Emerging Markets Strategy and Product Life-Cycle Extension through Value Analysis and Value Engineering

Our Digital competencies are focused on Industrial Internet-of-Things (IIoT), Engineering Big Data Analytics and Software Defined Networking (SDN)/ Network Functions Virtualization (NFV).