



This portfolio contains detailed information about some of my projects and work experience that might be relevant to the position being offered

ReadyDock (Now called iCleanse)

iCleanse is a start-up that builds UV-C disinfection stations. I started of my career as an engineer here. Due to a lean staff, I held a wide array of responsibilities. I have briefly listed a few of these responsibilities below

Product development

I extensively worked on the Swift XL and Swift 5X products to resolve service issues and optimize them for production. I have listed some key responsibilities

- I adopted the FMEA methodology to improve on the design process to improve assembly and future serviceability of the product. All design of parts were carried out in Solid-works.
- I catalogued and recorded all service issues in the products to date. This data was later used to generate a service based revenue stream.
- I developed software features to improve the service life of the swift product

Production and supply chain management:

After getting accustomed to the product, I worked in a team to manage the production and procurement of parts. Some of my related responsibilities are as follows.

- ♦ Updating the Bill of materials after every production run to reduce costs.
- ♦ I directly dealt with manufacturing companies and other suppliers in price negotiations.
- ♦ I worked in a team of two, to carefully plan out our production runs and secure the necessary inventory for future production runs.

Other responsibilities:

- I directly dealt with customers from different backgrounds to help resolve service issues.
- I also helped develop testing equipment, plans and protocols to increase testing and assembly efficiency.



Swift XL



Swift 5X

PRODUCT DESIGN AND DEVELOPMENT | WALLET DESIGN

Project was for partial fulfilment of Graduate Course on Mechatronics System Design

GOALS: The primary of goals of the project were to learn and adopt a set of methodologies and quality tools in the development of a product. The project was focused on adopting a holistic and systematic approach which would take into consideration user inputs, manufacturability and serviceability of a product.

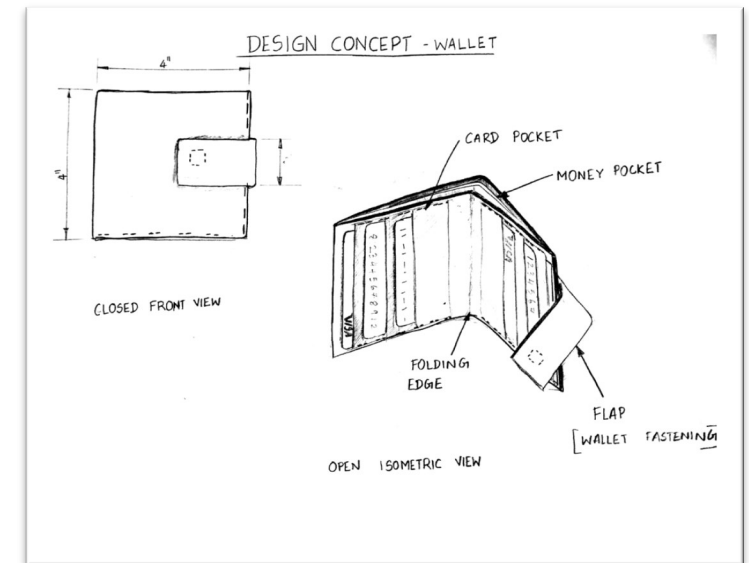
IMPORTANT TOOLS USED:

Quality Function Deployment: This tool was used to involve customer requirements and concerns into the design and service aspects of the product

Failure mode affect and analysis: This tool was used to identify and eliminate potential product and process failures or defects. The risks in a product were assessed with its severity, occurrence and detection.

Design of Experiment: Purposeful changes were made to the product's features in order to observe changes in desired outputs like service life, etc. Based on the information gained from the DOE (Design of Experiment) performance and cost effectiveness were improved

Other Tools used: Product brief, Voice of the customer, Pugh matrix, Morphological chart, etc.



Free hand sketches of prototype



Wallet prototype built using the methodology

Autonomous gear shifting in bicycles

Project was for partial fulfilment of Graduate Course on Mechatronics system design

Project involved 100+ hours of combined work.

DESCRIPTION: The main goal of this project was to develop an autonomous gear shifting system for a bicycle. The system also calculated the optimal gear combination based on the cadence (Pedalling rate) being sensed. With the increase or decrease of cadence, the system tried to reach an optimum cadence of 80 by changing the gears in-order to do so. The motors were programmed for a specific angular deflection for every gear shift in order to replicate the twist shifters on the bicycle. I have highlighted some skills I used for the project below.

FABRICATION/MACHINE SHOP EXPERIENCE

We designed a pulley system to reduce the torque required to change the gears by 75% of the original value. Some tools/

3D printing: We used SolidWorks to design some parts and then 3D printed them using the makers space.

Fabrication: Laser cutter, Ban saw, lathe, threading tools, drills etc., were used to create other subassemblies.

