

# Variable Dose Drug Delivery Pen – Auto Injector

## Designing an affordable and accurate Dose Drug Delivery Pen

### BACKGROUND AND CHALLENGE

The requirement was to design a multi-dose auto-injector, where the dosage volume can be set as prescribed by medical practitioners.

The device had to dispense accurate doses ranging from 1IU to 60IU and should have additional patient safety measures such as locking when the drug is fully consumed.

Currently, auto-injectors are heavily patented, resulting in higher device costs and premium royalty.

### SCOPE OF WORK

- Research and landscape for patent
- Develop innovation and mechanism concepts
- Develop Industrial Design, factor in Human Factors, and offer Usability Engineering
- Design based on Detailed Engineering and analyze Tol-stacks
- Prototype and Test Functionalities
- Verify Design and Release DHF for regulatory submission
- Apply for patents in India and internationally under PCT



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### SOLUTION

- Used a novel and patentable mechanism to ensure only mechanical movements to deliver variable doses of the drug
- Integrated smart features such as end-of-life lock for drug cartridges
- Developed on a design that overcomes mechanical friction within the system
- Built to bulk manufacture

### IMPACT

- Offered affordable healthcare
- Delivered a wide coverage of drugs and can be customized for different volumes of drugs
- Empowered customers to make adjustments as per their geographical needs

