

Universal Ink Refiller

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Business Opportunity

The Problem

- 15 million pens sold daily worldwide. Majority of them are not used
- Plastic nondurable goods – account for 6.4 million tons
- According to EPA, Americans throw away 1.6 billion disposable pens each year.
- Current pen refills classified as hazardous waste
- Accumulation of waste of plastic and metal materials

Value Proposition

- Consumers have an alternative to throwing away cheap or expensive pens
- People are willing to pay for convenience
- Decreased amount of unused pens as a result of the universal ink refiller
- Device would pay for itself
- Long term costs are less compared to buying additional pens or additional pen refills
- Positive environmental impact
- Reduce further pen and/or ink refill purchases

Plastic Waste in Garbage Dump



Description of Product

- In essence, this device is a simpler version of a common mechanical lab pipette, yet modified for common use.
- This device will be constructed with an outside layer of plastic, with a narrow metal tip.
- The tip is initially encased in the outside plastic structure
- The necessary ink cartridge would be inserted to the back end of the device.
- When pressure is applied, the tip of the refiller is exposed and inserted into the back end of the pen
- When a second pressure is applied, ink is released into the pen
- Although this product is technologically simple, its application to the real world is unique

Overview of Market

Market

- Pen users with an environmental conscience
- People with the intention of eliminating waste by using less plastic or reusing a pen they currently enjoy
- Expensive pen owners too shy to use pen for fear of using all the ink
- Large focus on corporate and academic area
- Students and professors in academia as well as corporate employees can use the refiller for pens they currently use

Competitors

- Although there are pen ink refills, they are usually for specific ballpoint pens and other plastic pens. Furthermore, they often cost nearly as much as the original pen itself.
- Some products such as Stabilo offer special pens with reusable ink cartridges. However, the cartridges are designed only for their pens.
- A universal pen ink filler is unique because it has the potential to refill all types of pens and also be cost effective.
- This device does not currently exist in the market today

Stabilo w/ Ink Refill



Development Plan

- Finalized design completed within the next month on solidworks
- Plastic skeleton structure 3D printed by mid-March
- Mechanical components fully integrated by end of March
- Finalized device by April
- Production costs are minimal: \$100- 150 budget for plastic components and 3D print rework.
- \$50-75 for movable components and total instrumentation usage
- Estimated \$3 - \$8 cost range per unit (Not including ink cartridge)

Team

Derek Yee: Project Manager

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From: Seattle, WA



Amey Vrudhula: Solidworks Designer

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