Articulating Pressurized Isopropyl Alcohol (IPA) Sprayer

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**Design Constraints**
The design of the sprayer should be such that it will:
- Provide 30 PSI targeted IPA spray
- 1 meter insertion depth
- Waterproof and chemical resistant
- Maximum 2 mm diameter
- Single handed operation
- Ergonomic
- Redundant safety system
- Spark proof electronics/mechanics
- $500-$1000 budget

**Purpose of the Device**
The purpose of this project is to create a flexible isopropyl alcohol (IPA) sprayer to navigate through complex geometries of 3D printed components and to fully coat it with IPA. Our task is to check for foreign object debris (FOD). It will be done by going inside of these parts, spraying IPA, and then going through an inspection process to check for cleanliness.

**Project Timeline: Winter 2022**
- Work on PRF’s
- Get approval on the parts
- Get approval on the PRF’s
- Order in parts for prototyping
- Rough Assembly of the prototype
- Midterm Design Review
- Changes to the prototype
- Final Design Review
- Poster Presentation
- Modification of the prototype
- Research on Sealants
- Take Care of leaks

**Solution**
Our primary objective is to coat the internal geometry with IPA as efficiently as possible. We want this product to be user friendly and highly effective. After going through an exhaustive design selection process, our team has finalized on an idea inspired from a drain snake. We will feed in a tube manually where the IPA flow will be powered through a pump.

**System Overview**

**Overview of Supplies**

**Sample Internal Geometry**

4 different test paths each with its own unique attributes

**CFD for the Tube Adaptor**

**Team Roster**
- Rishabh Bhushan
- Ognjen Cosic
- Daniel C. Lai
- Alexis Fuentes-A
- Kameron Cole Ziff