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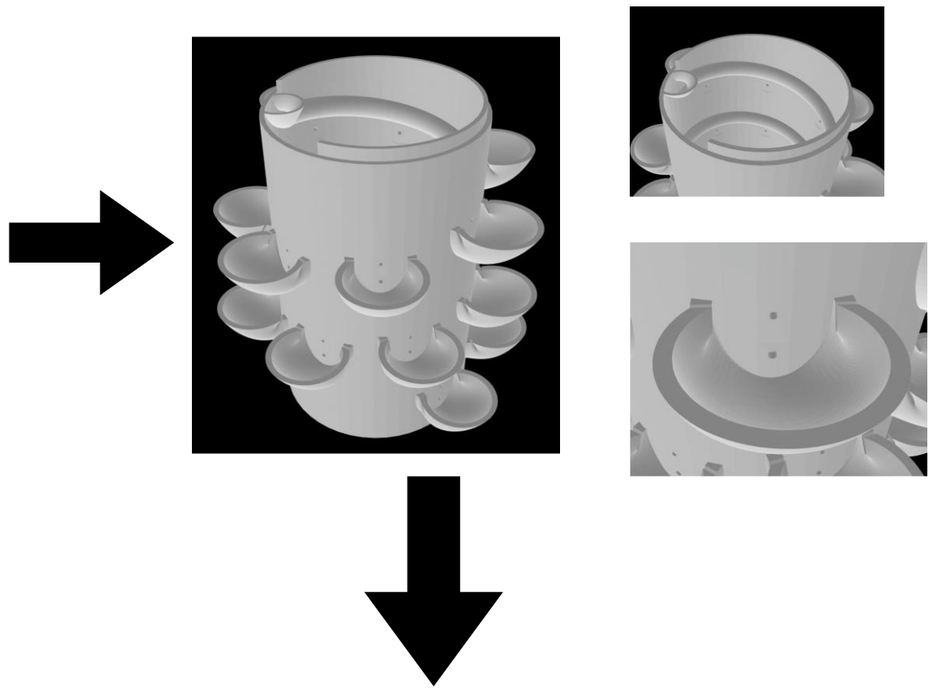
# Multi self watering pot

**Motivation/Idea:**

- *Water Efficiency:* Reduces water waste with self-watering technology.
- *Space Optimization:* Maximizes gardening space through modular stacking
- *Convenience:* Provides automated watering for hassle-free maintenance
- *Plant Diversity:* Accommodates various plants, including vegetables, herbs, and flowers
- *Modern Integration:* Integrates technology with traditional gardening methods
- *Accessibility:* Makes gardening accessible to all, regardless of time or experience
- *Modular:* The amount of the plant spots can be easily increased by adding up another pot
- *Personalization:* Allows users to customize watering schedules and plant arrangements.



**Funcionality:**

Our self watering pot is made out of three diffrent parts:

- *Tank:* This component holds water and houses the pump. It features a small slot for inserting the power cable. On top of the pump sits the plant pot. The pot is a cylinder with small slots on the exterior for seeds. Each slot has a hole from which water flows from an internal spiral that is filled with water. Additionally, each slot has a second hole for draining excess water if present. This part can be stacked as desired.
- *Plant Pot:* This cylindrical component sits atop the pump in the tank. It contains small spots on its exterior for placing seeds. Each spot has a hole from which water flows from an internal spiral filled with water. Additionally, each spot has a second hole for draining excess water if present.
- *Cover:* This component serves as a lid for the tank. It features a connection point for attaching the pump's hose, allowing water to flow into the pipe of the plant pots.

**Reason for 3D Printing:**

- *Complex Geometries:* The intricate spiral design within the plant pot would be difficult to achieve using traditional manufacturing methods. 3D printing allows for the creation of complex geometries with ease, making it ideal for implementing the internal spiral irrigation system.
- *Precision:* The small size of the holes in the plant pot for water flow presents a challenge for conventional manufacturing techniques like casting. 3D printing offers high precision, enabling the creation of tiny, accurately placed openings that would be difficult or impossible to achieve through other methods.
- *Customization:* 3D printing allows for easy modification of the design to accommodate different sizes and numbers of plant spots. This flexibility enables users to customize the self-watering pot according to their specific needs and preferences, providing a tailored gardening experience.

**Reason for Stereolithography (SLA):**

- *High Quality and Accurancy:* SLA printing generally produces higher quality prints compared to FDM (Fused Deposition Modeling) due to its ability to achieve finer details and smoother surfaces. This is crucial for ensuring the precise functionality of the small holes and intricate spiral design within the plant pot.
- *Watertightness:* SLA resins are known for their water-resistant properties, making them ideal for creating components that need to hold water, such as the tank and plant pots in the self-watering system. This ensures that the printed parts maintain their structural integrity and functionality over time without water leakage.
- *Smooth Surface Finish:* SLA prints typically have smoother surface finishes compared to other 3D printing technologies, reducing the risk of water leakage or residue buildup on the components. This smooth finish also enhances the aesthetic appeal of the final product.
- *Complex Geometries:* SLA's ability to produce complex geometries with high precision makes it well-suited for creating intricate components like the spiral pipe in the self-watering pot. This capability enables the implementation of innovative designs and functional features, enhancing the overall performance and efficiency of the self-watering pot system.

**Problmes with SLA:**

- *Cost:* SLA printing tends to be more expensive compared to FDM printing due to the higher cost of materials and equipment.
- *Post-processing:* Post-processing for SLA prints can be more labor-intensive and time-consuming. For example, support structures used during printing may leave sharp edges on components like the plant spots, requiring additional sanding or smoothing to achieve the desired finish.