"Hide and Seek" - An Underwater Adventure with a Glowing Shark

Our project explores the concept of a glowing shark that inhabits the deep, dark parts of the ocean. These unique sharks are shy around light, so we designed them to hide in a cave whenever light appears. In darkness, the shark appears to swim gracefully in place. However, if light is detected, it swiftly hides in a cave, pausing its movement due to fear, until darkness returns. Once it is dark again, the shark ventures out to resume its swimming.

For this project, we crafted two sharks using 3D printing and created an oceanic environment populated with clay-made fish, turtles, shells, and more, all meticulously hand-painted. The sharks are coated with a special paint that allows them to glow in the dark, adding to the magic of the underwater scene. We carefully arranged all mechanical parts, including servos, motors, and an Arduino board, underneath the display platform to keep the focus on marine life.

Key Components and Design Logic:

- **Light Sensing**: We have integrated photoresistors beneath the project's base to detect changes in light, enabling the shark to respond to its environment by hiding or swimming.
- **Movement Mechanics**: To mimic the natural swimming motion, we equipped the shark with two small servos under its head and tail, allowing for realistic movement within a 180-degree range.
- **Navigational Feature**: A continuous rotation servo, placed under a disk near the cave and open water, facilitates the shark's movement between hiding and swimming. Initially planned for 360-degree rotation, we adjusted to a 180-degree back-and-forth motion to avoid wire entanglement issues.

Project Goals and Achievements:

Our "Hide and Seek" project successfully combines technology with creativity to simulate the intriguing behavior of a glowing shark in its natural, lightless habitat. Through thoughtful design and engineering, we brought to life an interactive display that captures the allure and mystery of the deep sea. This project not only showcases the glowing shark's unique response to light but also enriches our understanding of marine life adaptation.

Project Photos

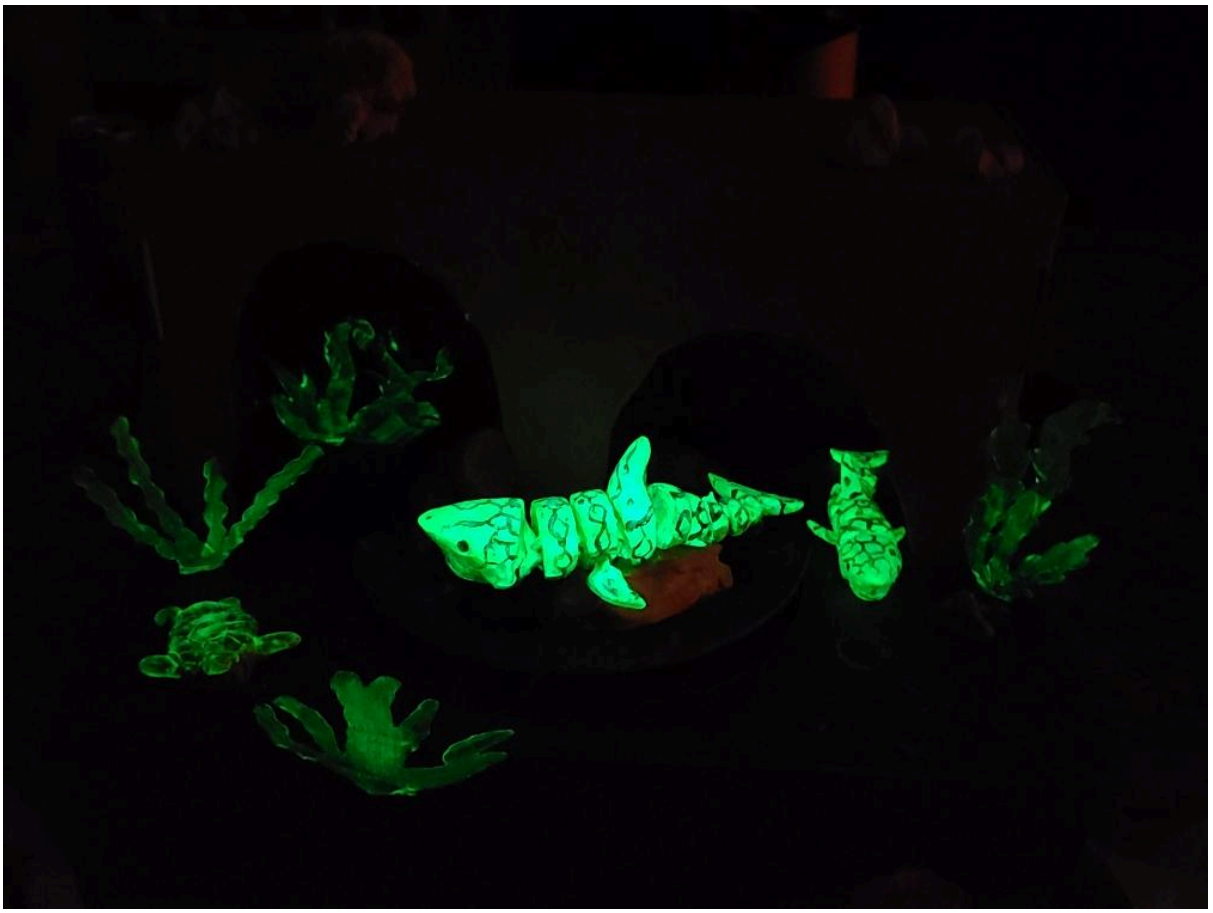

Photo 1 of 3

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