Development of Oil Collecting Submarine Using AI and Hydro-Filter Solution

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Catastrophic oil spills inflict severe harm on marine ecosystems. Conventional cleanup approaches are often inefficient, some resulting in further pollution. In response, I devised a highly efficient method to clean oil spills. A drone submarine equipped with a top-mounted camera was engineered to navigate freely underwater. This innovative design incorporates a detection AI model capable of identifying oil spills, coupled with a specialized filter designed to separate oil from water. This project presents the performance of an AI model trained with YOLOv8 algorithm using an augmented dataset for real-time detection of underwater oil spills. Also it introduces a novel filter designed to isolate oil droplets from water. The filter, constructed from hydrophobic and superoleophilic materials, effectively separates oil from water upon entry, directing the water out while retaining the oil. This project utilized an AI model for real-time detection of underwater oil spills and a filter for separating oil from water. Ensuring a new efficient method to clean oil spills.

Awards Won:
International Council on Systems Engineering - INCOSE: Certificate of Honorable Mention, a 1-year free student membership to the INCOSE, and free virtual admission to the 2022 International Symposium of the INCOSE