# NUTRA OceanSensor

Passive, autonomous underwater sentinel for early threat detection.

## Problem Statement

Modern ocean monitoring systems are expensive, active, and easy to detect. There's a need for scalable, stealthy, and self-triggered systems that can operate without infrastructure.

## Solution Summary

NUTRA OceanSensor is a disposable, low-tech underwater sensor that detects environmental changes (fuel, chemicals, seismic events) and autonomously releases a buoy with a transmitter. An optional AI module ensures intelligent triggering.

## Key Features

✅ Passive & stealthy (no active transmission until triggered)  
✅ AI trigger logic (chemical, thermal, seismic thresholds)  
✅ Infrastructure-free deployment (from drones, boats, manually)  
✅ Biodegradable or inert materials  
✅ ~$35–50 per unit (mass scalable)

## TRL Snapshot

Currently TRL 3–4. Prototype ready in 10 days. Field testing scheduled for Month 1–2.  
Goal: TRL 6 (relevant environment demo) by Month 4.

## Target Use Cases

• Oil spill detection  
• Chemical sabotage early warning  
• Undersea infrastructure protection  
• Marine conservation

## System Flow

Seabed sensor → AI trigger logic → Buoy launch → Signal transmitted → Operator alert / dashboard

## Contact / Authorship

Alexander Shakhov — Founder of NUTRA Concept  
Project repository: https://github.com/alexs749266/NUTRA\_OceanSensor  
Open for direct contact, collaboration, and demonstration