Pelagic Pursuit 2.0

A Game development for ocean exploration and discovery

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OBJECTIVE

Develop an engaging and educational underwater robotics game to explore and discover:

- Ocean processes
- Marine life
- Bathymetry
- …

Provide insights into the challenges and opportunities the underwater environments holds:

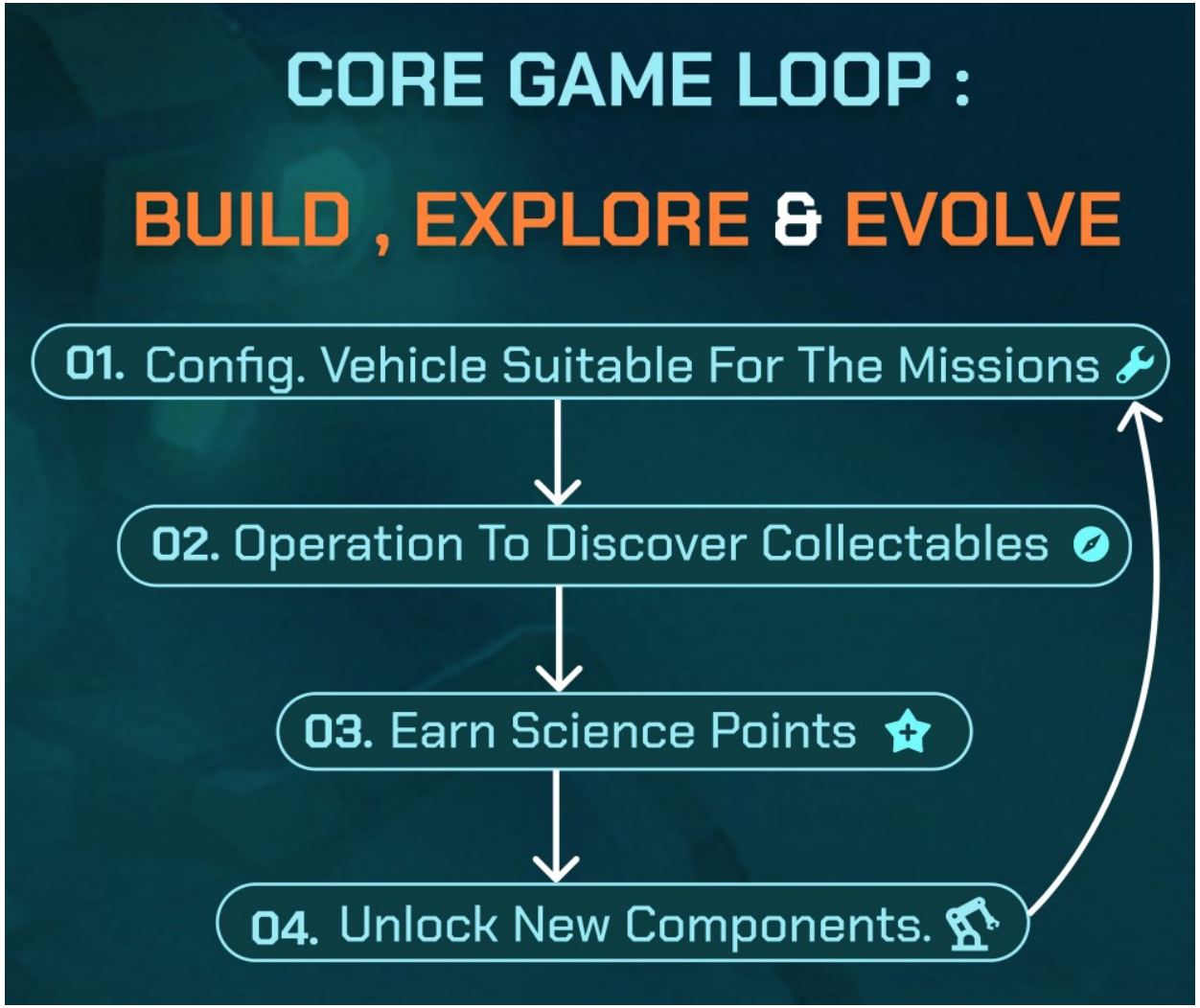
- Visibility
- Light
- Sound
- Temperature
- Salinity
- …

KEY FEATURES

- **Realistic underwater environments** modeled after real-world locations, such as hydrothermal vents and coral reefs.
- **Gameplay mechanics that encourage** exploration, data collection, and scientific discovery.
- **Interactive educational content,** such as information about marine animals, plants, and geological features.
- **Modular design** to allow easy integration of new robots, environments, and gameplay features.

PREVIOUS PROJECT (PELAGIC PURSUIT)

https://pelagicpursuit.uni-bremen.de/



Pelagic Pursuit project poster. https://pelagicpursuit.uni-bremen.de/ accessed 08.04.2026 13:00 CEST

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NEXT STEPS

- Increased **educational content** with improved presentation (potentially interactive in the game environment).
- More **immersive game environments**
- **New scenarios**

WHAT DO YOU NEED TO BRING?

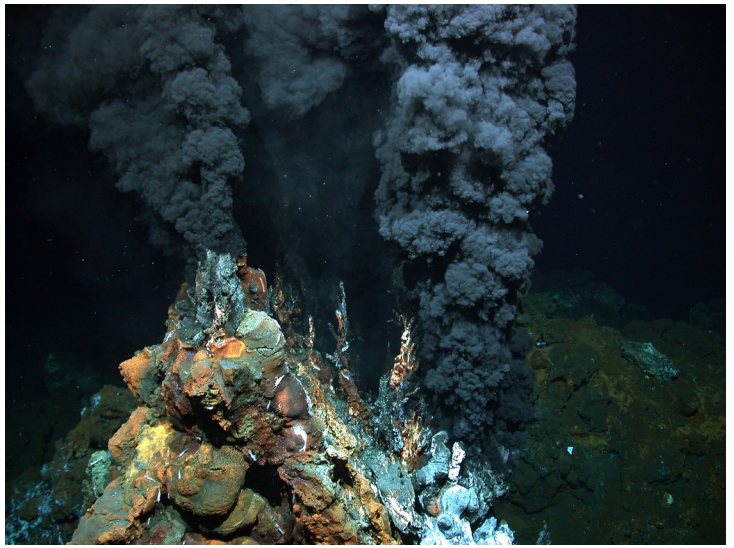
- General interest in interdisciplinary research and marine robotics
- Curiosity about developing new educational tools
- Creativity in designing new visualizations and interfaces for different target groups (K12)
- Willingness to learn new tools and approaches

EXPECTED OUTCOME

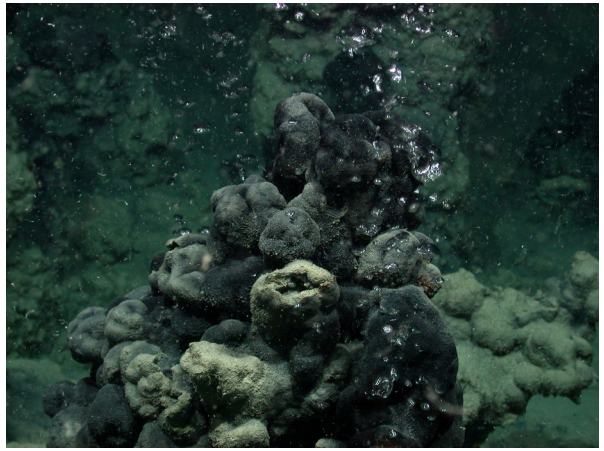
- **A functional underwater robotics game** that combines entertainment with ocean science education.
- Students gaining **hands-on experience** with underwater robotics.
- **Increased awareness and understanding** of ocean science processes among players.
- **Potential collaborations** with ocean science researchers and institutions for content development and validation.

CANDIDATES FOR POTENTIAL EXPLORATION AND DISCOVERY TARGETS

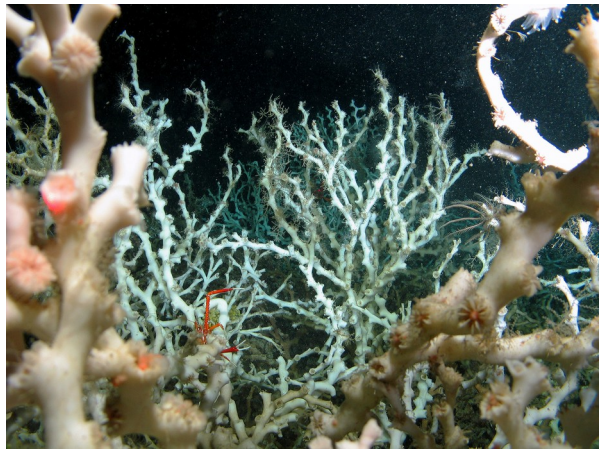
- Hydrothermal vents
- Coral reefs
- Gas seeps
- …



Expedition M64/1: Schwarzer Raucher am Mittelatlantischen Rücken in 2.980 Meter Wassertiefe, aufgenommen mit dem Tauchroboter MARUM-QUEST. Foto: MARUM – Zentrum für Marine Umweltwissenschaften, Universität Bremen / CC BY 4.0



Expedition M72/2: Methanblasenaustritt an Kalkschloten im Schwarzen Meer in 260 Meter Wassertiefe, aufgenommen mit dem Tauchroboter MARUM-QUEST. Foto: MARUM – Zentrum für Marine Umweltwissenschaften, Universität Bremen / CC BY 4.0



Expedition MSM20/4: Kaltwasserkorallen und Seelilien in 550 Meter Wassertiefe im Westatlantik, aufgenommen mit dem Tauchroboter MARUM-CHEROKEE. Foto: MARUM – Zentrum für Marine Umweltwissenschaften, Universität Bremen / CC BY 4.0

SUGGESTED COURSES

We would suggest the following courses, depending on which aspect of the game development is interesting for a student:

- **For a focus on the overall game structure / interfaces and work on the educational content:**
  - Entertainment Computing / Module number: M-MI/1
- **For a focus on the environmental representation and other game related visual assets:**
  - Advanced Computer Graphics / Module number: M-MI/6
  - Computational Geometry / Module number: M-MI/9