



L-Università
ta' Malta

Faculty of ICT

B.Sc. I.T. (Hons.) in Artificial Intelligence

ICT3909 (Final Year Project in Artificial

Intelligence – 30 ECTS)

Final Year Project Supervision

Agreement Form

(To be completed ONLY upon acceptance of supervision by supervisor)

Academic year:

2023/2024

Student name:

Mark Dingli

ID card #:

020703H

Supervisor name (and co-supervisor, if applicable – write supervisor name first):

Kristian Guillaumier

Project title:

AI-Driven Marine Conservation: Predictive Modeling, 3D Underwater Modeling and VR Experiences

Final Year Project Overview

- a. A student proposing his/her own Final Year Project title needs to present his/her proposal through the **opposite description form** and attach it to this supervision agreement form.

General Notes

- a. A track of all supervision loads will be kept in accordance with established values.
- b. The involved parties understand that maximum loading values are not to be exceeded in the absence of justifiable and extraordinary situations which need to be approved by the Board of Studies.

Declaration

By signing this supervision agreement form -

- a. The above-mentioned supervisor(s) affirms his/her/their intention to supervise the above-mentioned student.
- b. Both supervisor(s) and student acknowledge that it is at the Board of Studies' discretion to recommend acceptance of the project and supervision.
- c. The student confirms that in the case of acceptance by the Board of Studies, his/her decision to be supervised by the indicated supervisor is final.

NOTE: This form must reach the Department's Administrator via email on nadia.parnis@um.edu.mt

Signed:



Supervisor



Student

Co-supervisor (if applicable)

29/05/2023

Date

29/05/2023

Date

Date (if applicable)

For office use only

Received by: _____ Date: _____

For use by the Board of Studies

PROJECT SUPERVISION AGREEMENT FORM

ACCEPTED ☐

NOT ACCEPTED ☐

Additional Comments (if applicable):

The description for the FYP can be found on the following page.

Description: The central aim of this project is to develop a system that leverages the capabilities of artificial intelligence (AI) to transform trash debris cleanup, coral preservation and diving. The platform will consist of AI-aided trash debris prediction, simplified 3D models and immersive VR experiences.

Artificial Intelligence holds vast potential to improve the domains of marine exploration, environmental cleanup, and coral conservation by introducing levels of precision, engagement, and sustainability. However, applications fully harnessing AI's capabilities in these fields are notably few. This project aims to bridge this void, establishing itself as an AI-powered solution for marine sustainability.

The project will concentrate on the following areas:

Predictive Trash Debris Tracking: Building an AI model to predict the presence and movement of trash debris at bays and potential dive sites around Gozo. This model will use previously collected weather and sea data points to offer accurate forecasts. The website will also allow users to log in and report debris, notifying the Dive Centre, thus working hand in hand to aid efficient planning of cleanup activities and marine conservation.

Simplified 3D Underwater Modeling: Using AI techniques like computer vision to create straightforward but effective 3D models of dive sites and coral life. The resulting 3D models aim to give users a comprehensive understanding of the underwater terrain and marine life, facilitating cleanup planning and site selection.

Immersive VR Diving and Cleanup Experiences: Utilizing the power of virtual reality (VR) to design engaging, realistic simulations of dive sites. This component aims to allow users to virtually scout dive sites to familiarize themselves with the terrain and potential debris, thus enhancing the planning and effectiveness of actual cleanup dives. This will enable proactive preservation efforts, ensuring that diving and cleanup activities are conducted in a manner that safeguards these fragile ecosystems.

A website will be implemented to serve as a centralized hub hosting all AI-driven services. It will deliver real-time updates from the predictive AI model, showcase interactive 3D underwater models, provide access to immersive VR diving experiences and will have a variety of information for divers interested in exploring Gozo's beautiful waters. With a user-friendly design, the platform is geared to facilitate collaborative marine conservation by offering comprehensive insights, enhancing underwater exploration experiences, fostering an engaged community and promoting proactive sustainability efforts.

By integrating these AI-enhanced features, the project aims to create a comprehensive, user-friendly website that revolutionizes marine cleanup and conservation efforts. It seeks to elevate safety standards, improve cleanup planning, enhance underwater experiences, and contribute to healthier, sustainable marine life, thus striking a balance between exploration and preservation.