

Protection of beachgoers on the beach

Abstract

Beach Protector is an innovative solution to enhance beach safety by detecting and deterring dangerous sea creatures that pose a risk to humans. It consists of a Raspberry Pi 5 enclosed in a waterproof enclosure, attached to a floating buoy at the edges of the beach. Equipped with GPS, camera, speaker, and flashlight modules.

Introduction

Dangerous sea creatures pose a significant risk to human safety at beaches worldwide, leading to injuries, fatalities, and fear. Traditional beach safety measures are often insufficient to prevent encounters, and current methods for detecting and deterring these creatures are limited and ineffective. An innovative and proactive solution is needed to enhance beach safety and protect both humans and marine life by effectively detecting, deterring, and monitoring dangerous sea creatures.

Motivation

The motivation behind this project arises from the significant risks posed by dangerous sea creatures to beachgoers worldwide, leading to injuries, fatalities, and a growing fear of visiting beaches. Existing safety measures are often insufficient to prevent encounters with these creatures. Therefore, there is a crucial need for an innovative solution to enhance beach safety, protect human lives, and minimize negative impacts on marine life by effectively detecting, monitoring, and deterring dangerous sea creatures.

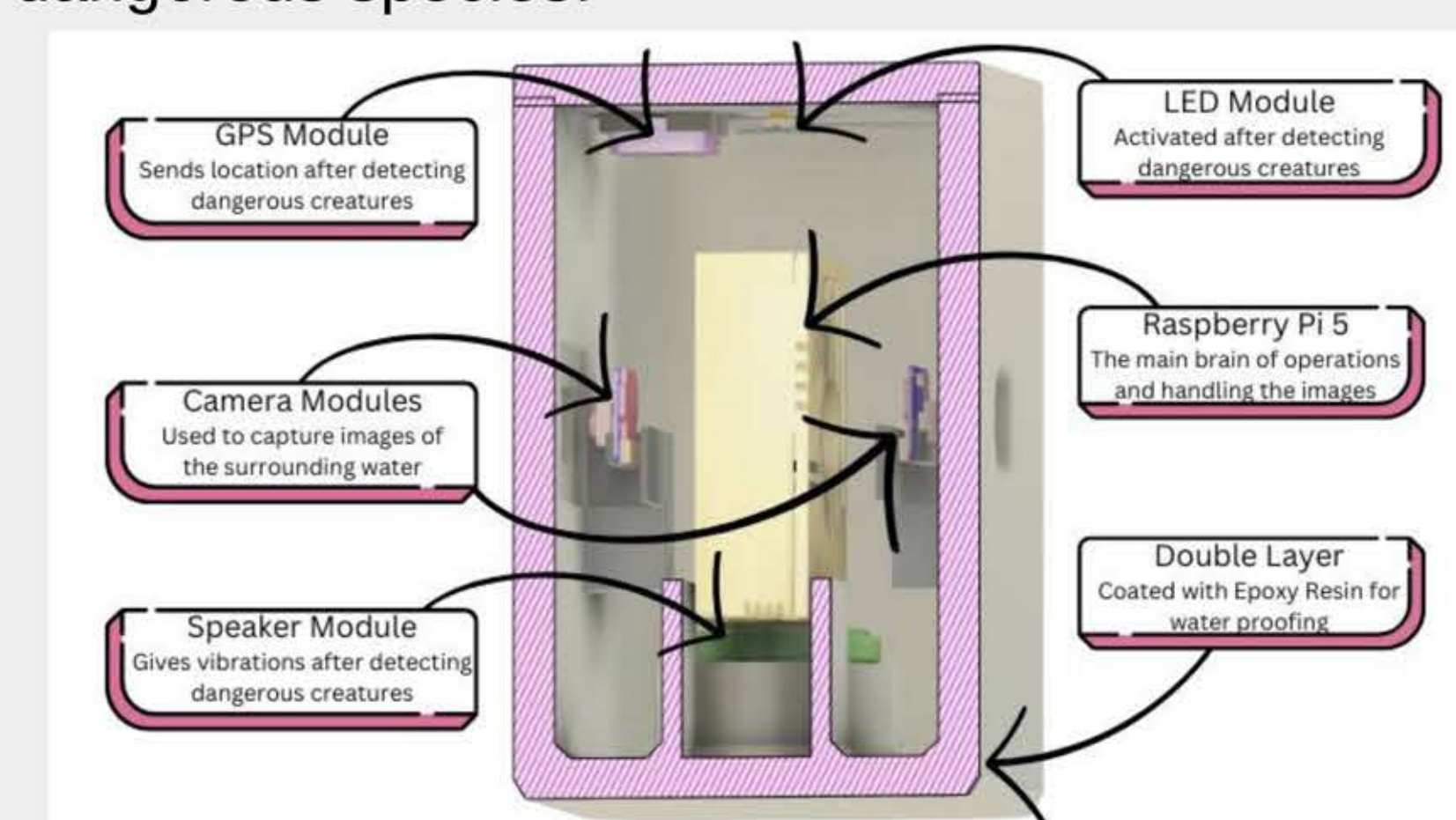
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Methodology

The proposed device is built using advanced technologies to ensure effective detection and deterrence of dangerous sea creatures. The system's main components include:

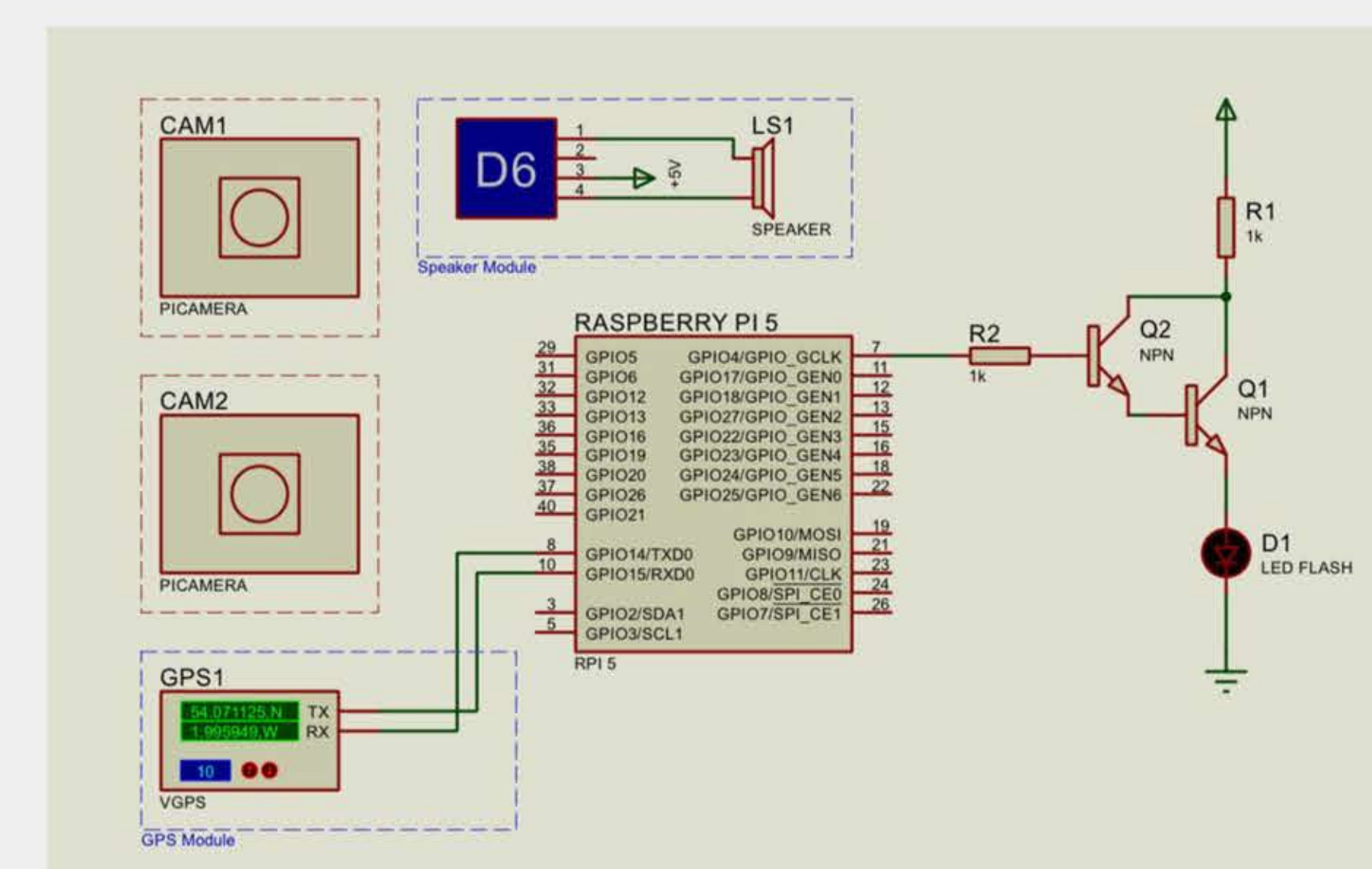
- Raspberry Pi 5: Serves as the central processing unit for the device.
- GPS Module: Provides real-time location tracking of detected marine creatures.
- Camera Module: Captures images and videos for monitoring and identification purposes.
- Speaker Module: Emits specific sounds to deter sea creatures.
- Flashlight Module: Produces light flashes to scare off marine creatures.
- Machine Learning Algorithms: Used for analyzing captured images and identifying dangerous species.



Applications

The device can be applied in various scenarios to enhance beach safety and protect marine life:

- Beach Monitoring: Real-time detection and deterrence of dangerous sea creatures.
- Data Collection and Analysis: Gathering data on marine creature sightings to study their behavior and distribution.
- Marine Conservation Support: Assisting marine conservation organizations in protecting endangered species.
- Beach Safety Awareness: Providing data for educational programs to promote beach safety and marine awareness.

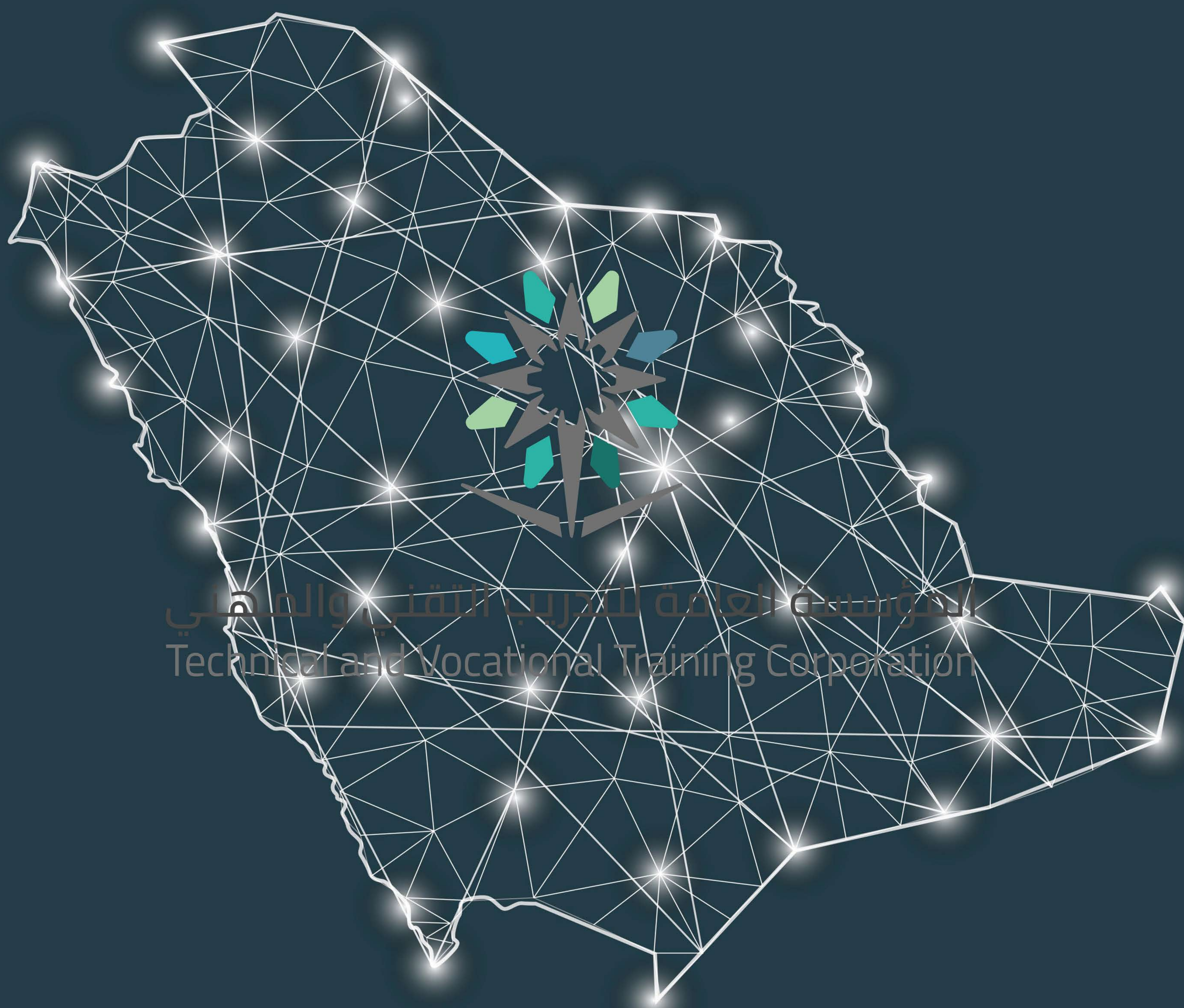


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