

Neo Entangle X

A Fusion of Quantum Entanglement and IoT in Rescue Robotics

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Abstract

Neo Entangle X is an advanced quantum-embedded robotic system that leverages quantum entanglement principles to enable ultra-low latency communication between a gesture-based smart glove and a multi-sensor robotic vehicle. This project merges the power of entangled diode pairs, LoRa communication, AI, and ESP32-CAM surveillance to form a highly adaptive system tailored for military and disaster rescue missions. With its capability to bypass traditional communication bottlenecks using entangled quantum traces, Neo Entangle X represents a leap in responsive robotics, enabling reliable control and feedback across hostile or obstructed environments.

1. Introduction

The integration of quantum physics into everyday engineering remains one of the most ambitious goals in emerging technologies. Neo Entangle X introduces a system where quantum entangled diode pairs are engineered and embedded into a dual-part robotic system. The robotic arm, controlled via a glove embedded with entangled pairs and supported by LoRa and AI, offers precise and secure command execution. The use of PIR, IR, gas, temperature, soil sensors, and real-time video feed via ESP32-CAM further augments its application in unknown terrains and disaster zones.

2. System Architecture

Neo Entangle X consists of two subsystems: the Smart Glove and the Robotic Vehicle. Each is embedded with a diode trace synthesized in laboratory conditions and entangled to ensure synchronized quantum states. The smart glove interprets hand gestures and transmits control signals to the vehicle in real-time via quantum state shifts and fallback LoRa-based communication. The vehicle responds with live camera feed and sensor analytics shown on OLED screens. AI-powered modules handle object detection, obstacle avoidance, and basic environmental analytics.

3. Key Modules and Sensors

- Quantum Entangled Diode Pair (QDP)
- ESP32-CAM for AI-enabled live video streaming
- LoRa for low-power long-range communication
- PIR, IR, Gas, Soil, Temperature sensors
- OLED display for on-board diagnostics
- NRF module for signal jamming detection
- Capacitor-based projectile shooters (defense)
- Bionic servo arm for rescue operations
- Compass and sound module for navigation and feedback

4. Working Operation

The smart glove translates user hand gestures into electrical signals, which are encoded into quantum shifts in the diode pairs. These shifts are detected at the robotic end, resulting in precise and real-time actuation. If entanglement communication fails, LoRa serves as a backup layer. Live environmental data collected from onboard sensors is streamed to the glove's display via the ESP32 network, aiding decision-making. Capacitor shooters and signal jamming detectors are activated upon risk detection. AI processes visual data for target recognition and route optimization.

5. References

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