基于多传感器的 UGS 入侵目标识别系统设计

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摘要：本设计是一个二级式系统，以前端多传感器和后端数据处理结合的方式来实现入侵目标识别的目的 。低功耗系统实时值守，高功耗系统精确捕捉入侵目标信息，通信模块实现信号定向、保密、无线传输。系统中包含了振动传感器、磁传感器、舵机、LoRa 通信模块等外设以及 STM32F103C8T6 型单片机。该系统同时满足了入侵目标识别系统高灵活性、高隐蔽性、低功耗、高稳定性的要求。为预警安防系统提供了新的思路，保证了预防入侵警戒人员的安全。

关键词：无人值守;入侵检测;多级系统;振动传感器;LoRa 通信

The Design of the Instruction Detection System Based on the UGS

Abstract: This design is a multistage system, the former terminal multi - sensor and back terminal data processing combined to achieve the purpose of intrusion target identification. The low-power system is on real-time watch, the high-power system accurately captures the information of the intrusion target, and the communication module realizes signal orientation, security and wireless transmission. The system includes vibration sensor, magnetic sensor, steering gear, LoRa communication module and other peripherals as well as STM32F103C8T6 microcontroller. The system meets the requirements of high flexibility, high concealment, low power consumption and high stability of intrusion target recognition system. It provides a new way of thinking for the early warning security system and guarantees the security of the guard against intrusion.

Key words: Unattended; Intrusion detection; Multistage system; Vibration sensor; LoRa communication