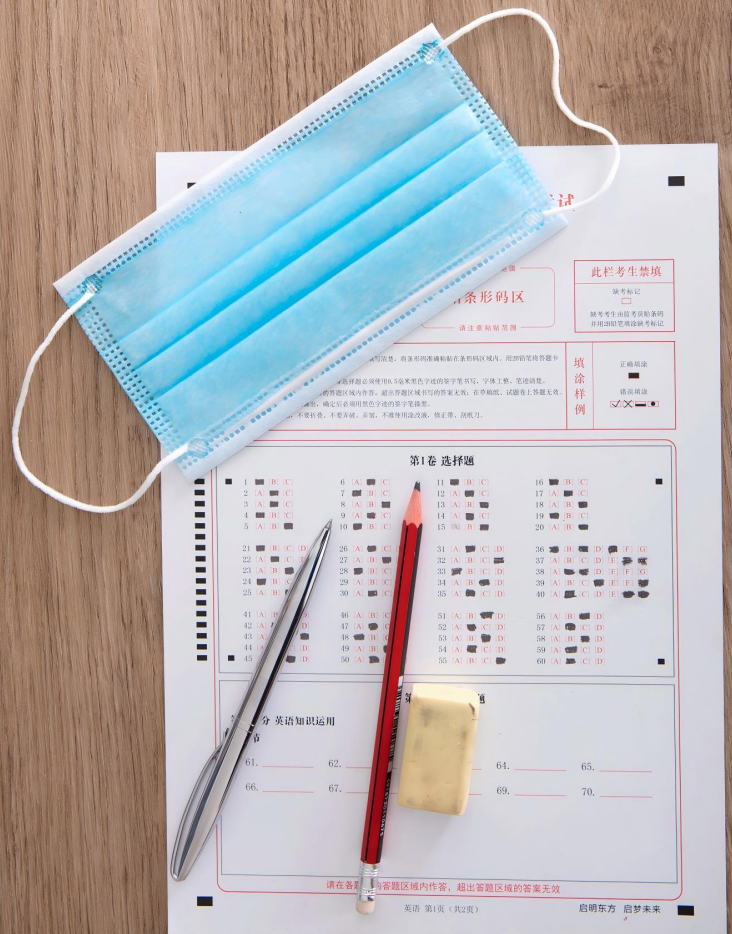
Safe Guard

"Contactless Safety Hub: Monitors smoke, temperature, and environment with Bluetooth alerts for quarantine protection.”



Background

During the COVID-19 pandemic, safety and health management in quarantine facilities faced unprecedented challenges. With manual monitoring being inefficient and risky, an intelligent solution was urgently needed. "SAFE-GUARD" emerged as the answer - this smart terminal provides protection through contactless temperature screening, smoke detection, environmental monitoring and Bluetooth connectivity.

Design Background

The COVID-19 pandemic has exposed key gaps in the facilities of isolation places:

★ Safety Gaps: Alcohol disinfection raised fire risks, while traditional smoke detectors couldn't distinguish ethanol vapor.

★ Inefficiency: Manual temperature checks required close contact (30sec/person), increasing infection risks.

★ Data Blind Spots: No real-time monitoring of environmental factors affecting virus survival (e.g., humidity);

★ Patient emotions: Anxiety caused by various reasons such as virus infection and separation from family

Survey questionnaire Investigation Summary

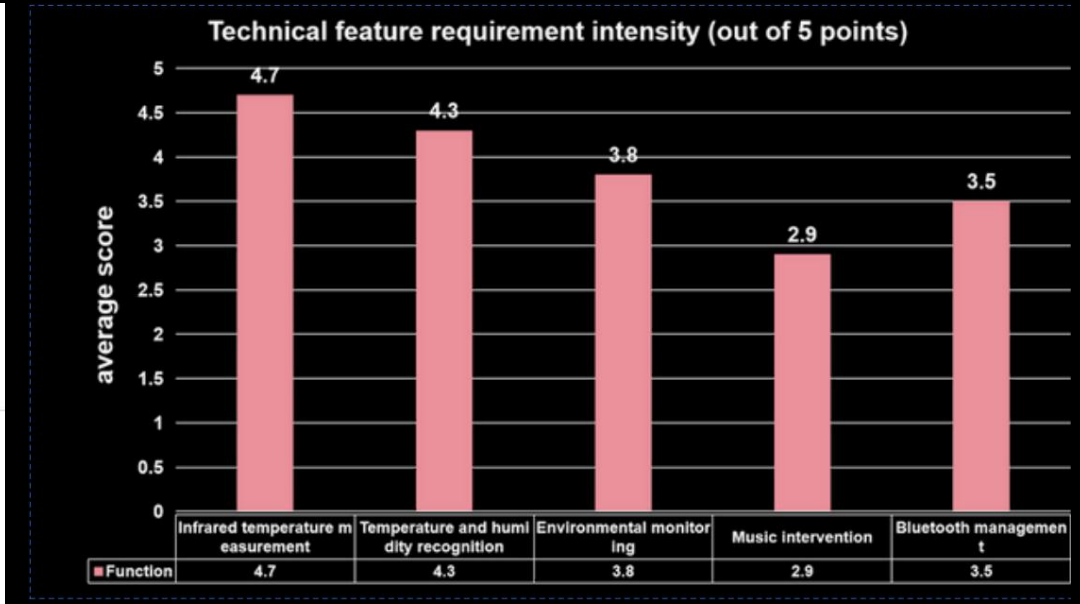
一、用户基础信息

1. 您所在的机构类型是?
   □ 隔离酒店 □ 方舱医院 □ 社区卫生服务中心
   □ 冷链物流企业 □ 政府防疫部门 □ 其他_____
2. 您参与防疫工作的角色是?
   □ 管理人员 □ 医护人员 □ 技术维护人员
   □ 隔离人员/用户 □ 其他_____

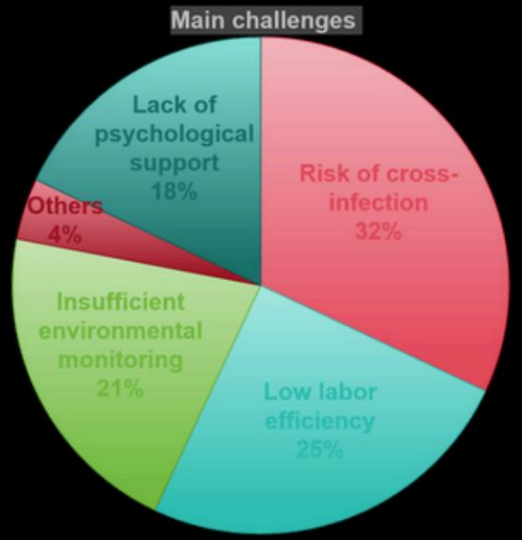
二、设计背景认知调研

3. 您认为当前防疫工作面临的主要挑战是? (多选)
   □ 交叉感染风险 □ 环境安全监测不足 □ 人工效率低下
   □ 数据追溯困难 □ 心理支持缺乏 □ 其他_____
4. 您是否遇到过以下问题? (多选)
   □ 酒精消毒导致误报警 □ 测温排队时间长
   □ 温湿度影响隔离舒适度 □ 缺乏自动化预警系统
5. 对"无接触式监测"技术的态度是?
   □ 非常必要 □ 可有可无 □ 不信任该技术

"The survey questionnaire was designed to collect user feedback on device placement, functional requirements, and improvement priorities in quarantine and public health scenarios."

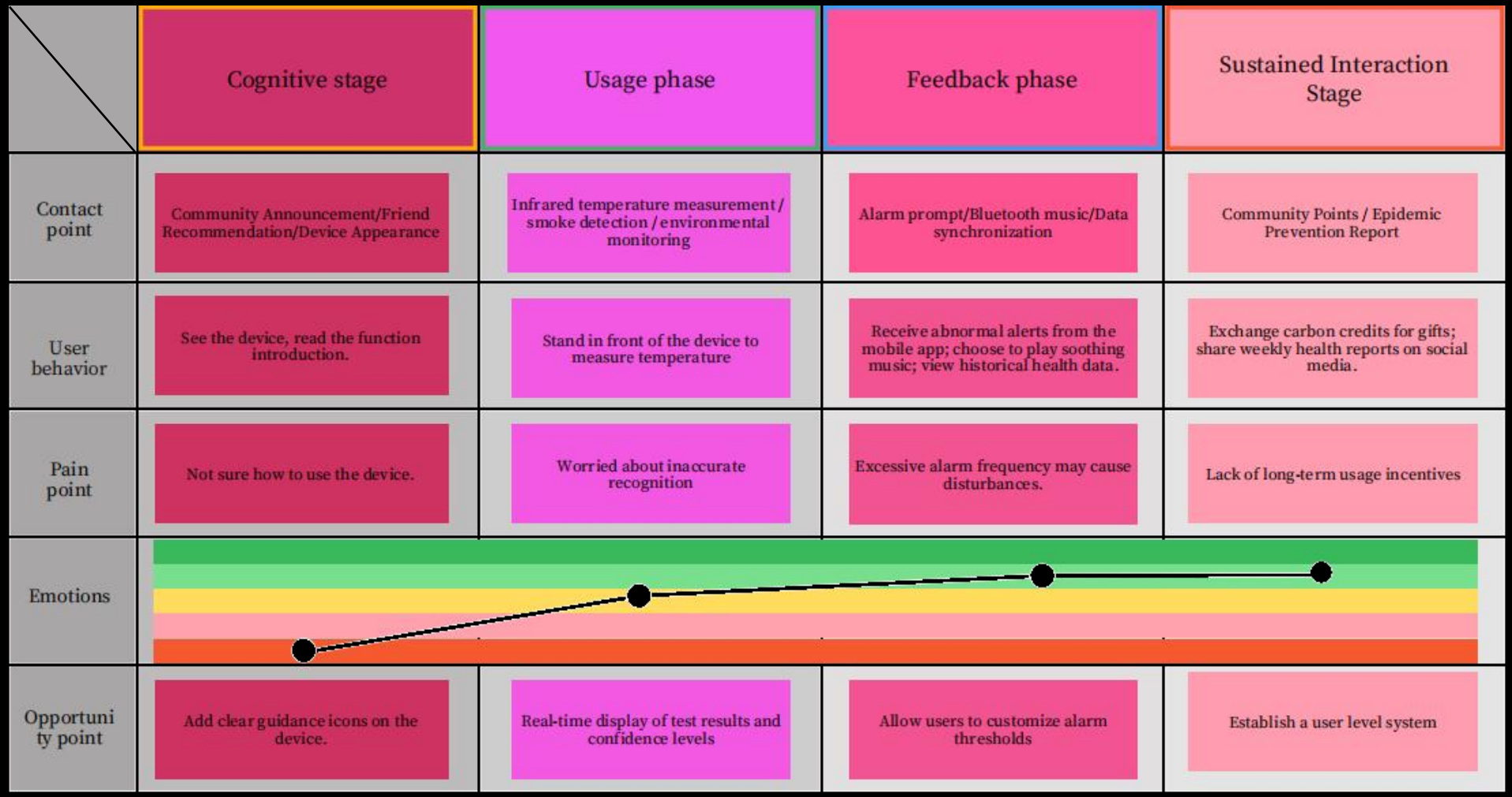


"Survey data show clear differences in user demand intensity across technical features, with core monitoring and recognition functions rated as the most important."



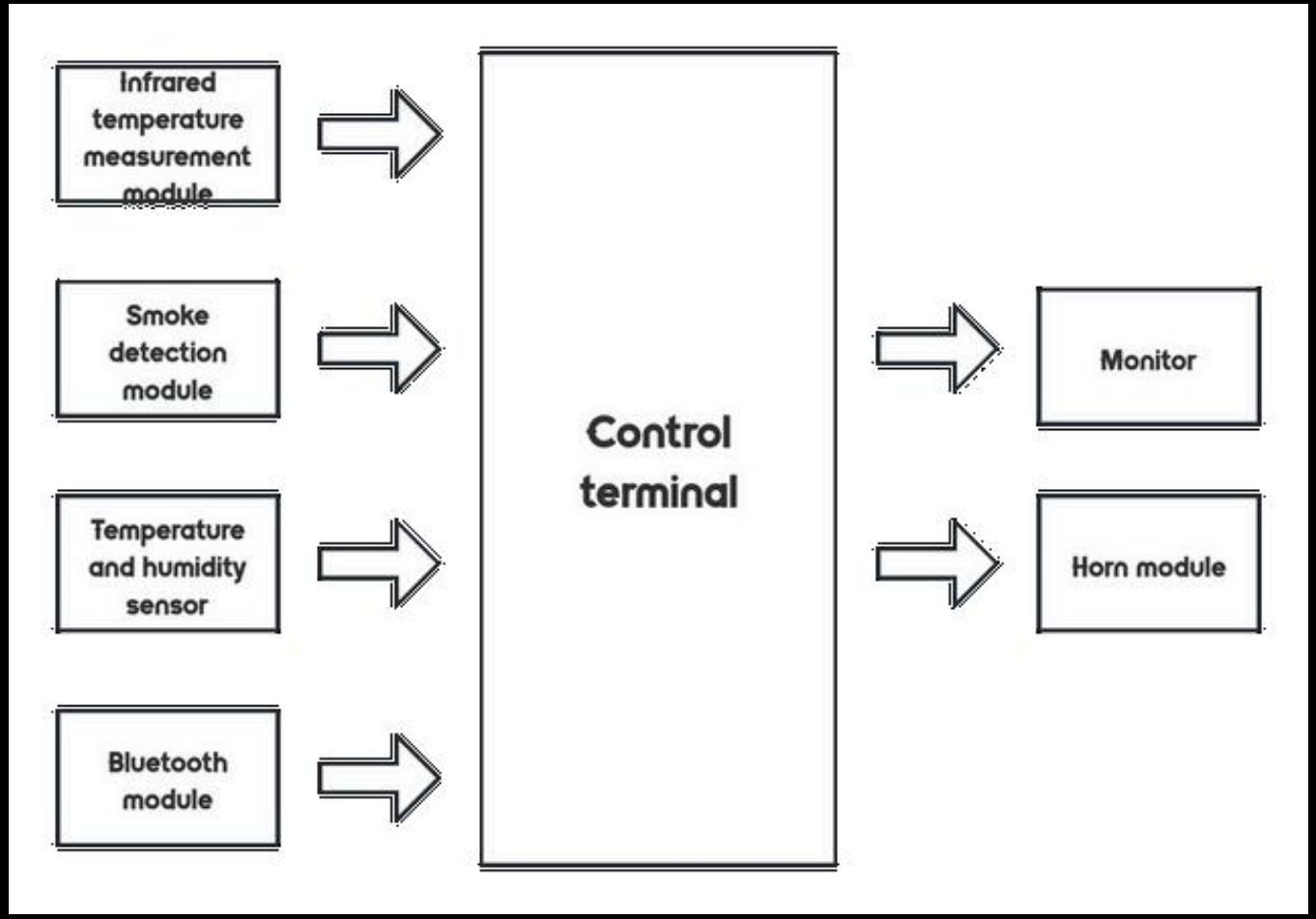
"Based on the survey results, infection risk and lack of psychological support are identified as the most critical challenges in quarantine environments."

User Journey Map

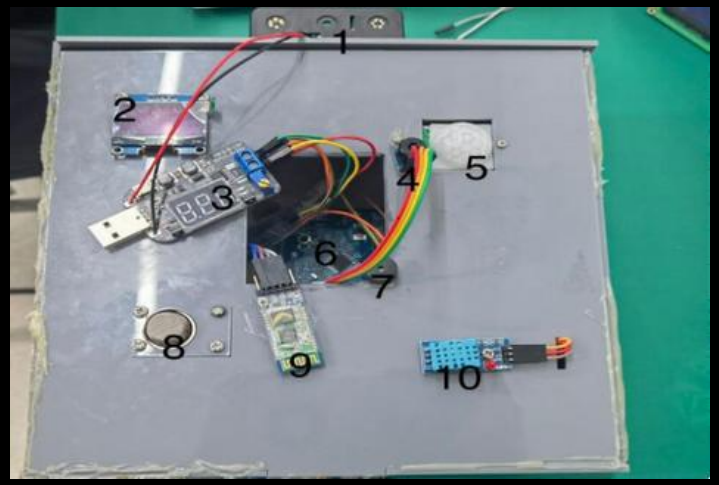


“The user journey derived from the questionnaire highlights continuous user needs for clear guidance, feedback, and system reliability throughout the usage process.”

Product Flow Diagram



Personal & Team Working



As the project leader, I identified the gaps in traditional epidemic prevention equipment in terms of contactless monitoring and multi-parameter integration through market research. I led the user demand research and model analysis, clarifying the four core functions of the product: infrared temperature measurement, smoke recognition, environmental monitoring, and psychological intervention. I was responsible for the development of the hardware system, completing the connections and optimizations of multiple sensors to achieve a temperature measurement accuracy of ±0.3°C and a false alarm rate of 5%. I also took charge of the appearance design of the prototype, resulting in the acquisition of a national utility model patent, patent number ZL202320420053.3.

证书号第19593496号

实用新型专利证书

实用新型名称：一种便捷式多功能智能安全管家装置及其远程控制系统

发　明　人：陈顺心;杨志豪;陈行;苏明强;李燕;施华

专　利　号：ZL 2023 2 0420053.3

专利申请日：2023年03月08日

专　利　权　人：厦门理工学院

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授权公告日：2023年08月29日　　授权公告号：CN 219609469 U

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2023年08月29日

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