

SmartHeart

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2025 CAL STATE LA STEM CORE

Summer Making, Academic prep, and
Research for Transfer students (SMART)
Internship Program

Introduction

This internship empowered me to explore real-world research and prototyping in STEM. Through a mix of technical workshops, coding projects, and collaborative design challenges, we tackled real issues in health tech and embedded systems using modern tools like DevCloud and Arduino.

To equip myself with practical, project-based STEM experience by combining software development, electronics, and machine learning into a fully functional, real-time health monitoring system.

Objective

Tools & Technologies

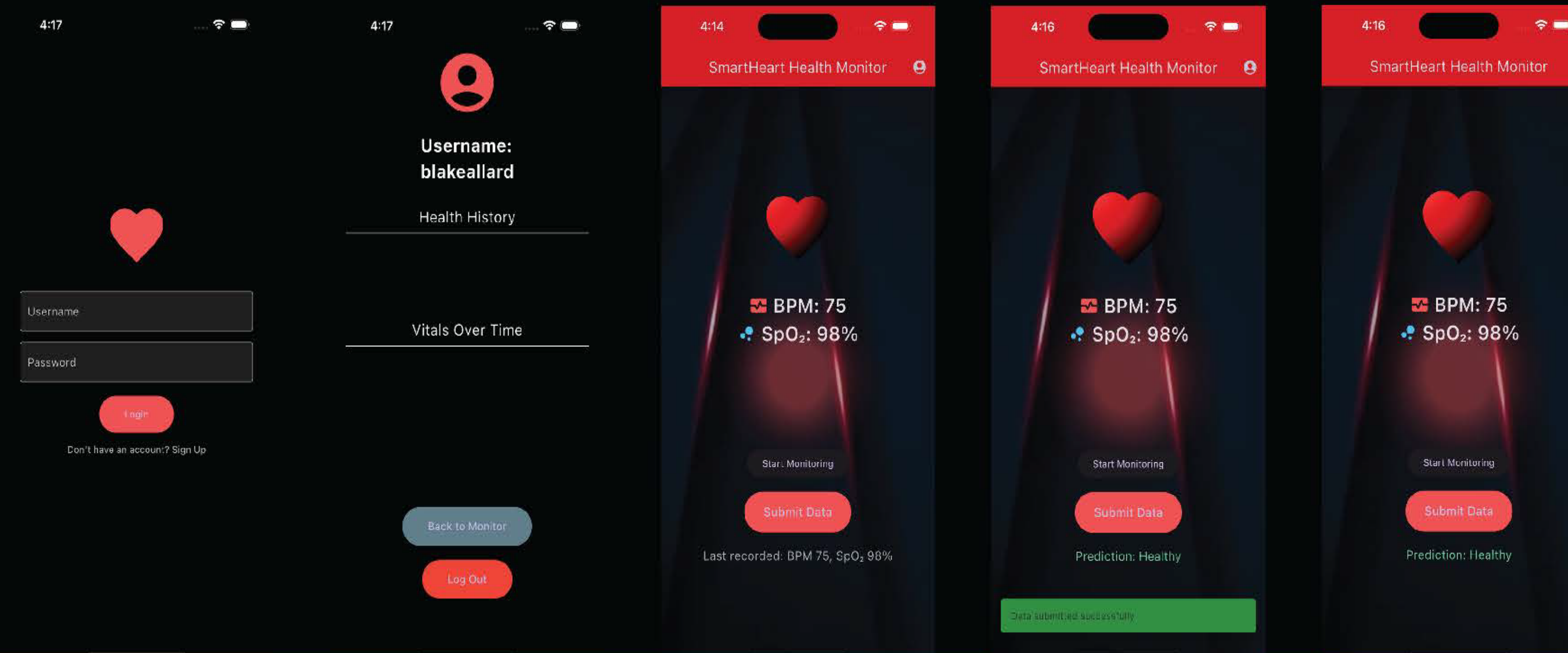
Intel DevCloud for ML
model training

Arduino & ESP32 for
real-time sensor data

Flutter & Flask for cross-
platform app & backend

PostgreSQL for user-linked
health data storage

Machine learning with
scikit-learn, joblib, and
CSV dataset prep



- Developed and deployed a real-time health monitoring system using ESP32 + Flutter
- Trained a machine learning model to classify heart rate and oxygen data with over 90% accuracy
- 100% of interns completed full-stack IoT projects - from sensors to mobile UI
- Intern projects demonstrated live data streaming, RESTful APIs, and database integration
- Presented final prototypes to mentors and faculty in a research symposium

Results

