

Safe View

Camera Monitoring System

BEng(Hons) Software and Electronic Engineering

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Project Description

Safe View is a camera monitoring system designed for people who may suffer from a condition that requires constant observation and monitoring day or night. The system was designed for people suffering with heart conditions, epilepsy, Alzheimer's, dementia or at risk of a fall in a solitary setting.

This automated system will bring comfort to families concerned about their loved ones.

- ☐ Accelerometer to provide data to interpret if a fall or seizure has occurred
- ☐ Heart Monitor to provide persons vitals such as BPM and Oxygen levels
- ☐ Force Sensitive Resistor placed under a mattress or seat to provide data if person at risk has got up unexpectedly
- ☐ Esp-Eye Camera allows a carer to observe the patient remotely

Hardware

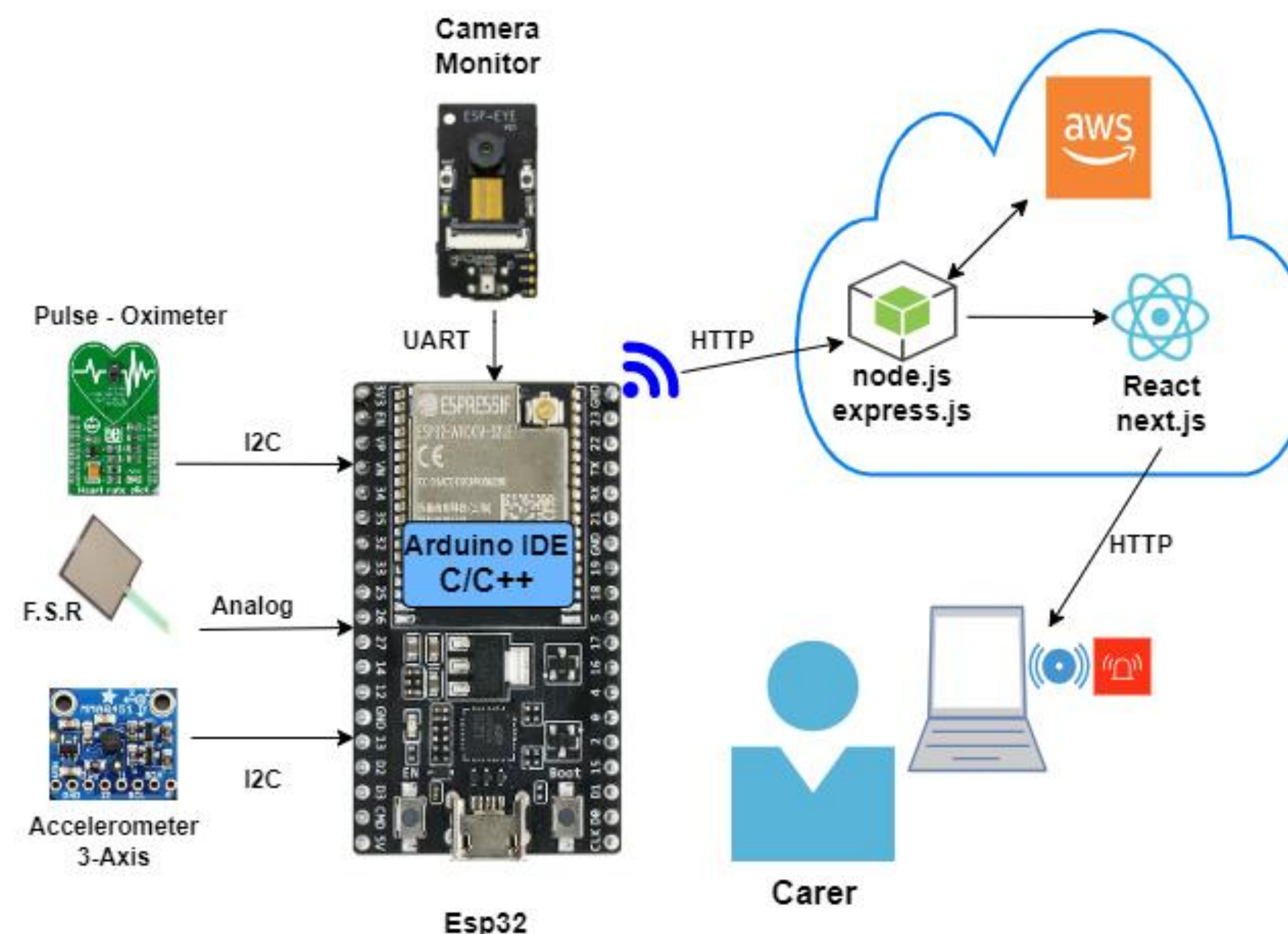
- ☐ Heart Rate and oxygen sensor
- ☐ Accelerometer
- ☐ Force Sensitive Sensor (FSR)
- ☐ ESP 32 – Microcontroller
- ☐ Esp-Eye Camera module

Communication Technology

I2C : This is a synchronous communication protocol.

- ☐ Allows microcontroller to communicate with multiple peripherals
- ☐ Uses just two I/O pins SDA (data) and SCL (clock)
- ☐ Simplifies communication for multi sensor projects

Architecture Diagram



JavaScript Frameworks & Libraries

Node.js : Open-source, cross platform runtime environment that executes JavaScript code outside a web browser. Enables developers to build scalable, server side applications in JavaScript.

Express.js : Lightweight framework built on top of Node.js. Simplifies server-side development. Handles HTTP requests such as GET and POST.

React: Is a JavaScript library for building interactive user interfaces. These libraries contain functions (APIs) to simplify frontend development

Next.js: A React framework that simplifies the creation of web applications. Connects the frontend to the backend (server logic, APIs). Features include handling API routes, data fetching and rendering.

Software

Arduino IDE:

- ☐ Build Test and debug C,C++ code
- ☐ Includes libraries and simplifies uploading code to Esp32
- ☐ Supports multiple platforms

Visual Studio Code:

- ☐ Free streamlined code editor developed by Microsoft
- ☐ Supports multiple programming languages

Future Developments

- ☐ Incorporate AI technology to create a personal health profile of each client to help predict or recognise situations.
- ☐ Implement Security features to protect clients data.
- ☐ Add feature to allow voice communication between client and carer