Classroom Monitor LF2

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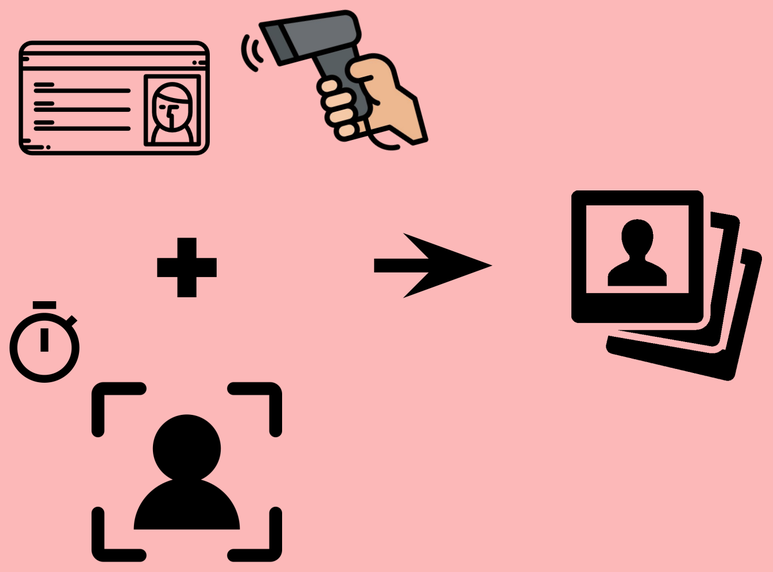
INTRODUCTION

The device will take a shot periodically, do face & emotion recognition and then update the results to the cloud database. The webapp will then fetch the data from the database and visualize them, enabling teachers to get instant feedbacks including student attendance & general classroom vibe, simply by looking at the web dashboard.

FACE RECOGNITION

Registration
Register students with photos and student IDs with the help of a scanner and a timer.

Attendance tracking
Compare the live stream to students' photos with pretrained model to find out the attendance, and record to the database.



FRONTEND | Vue

Process the requested data from the backend and visualize.

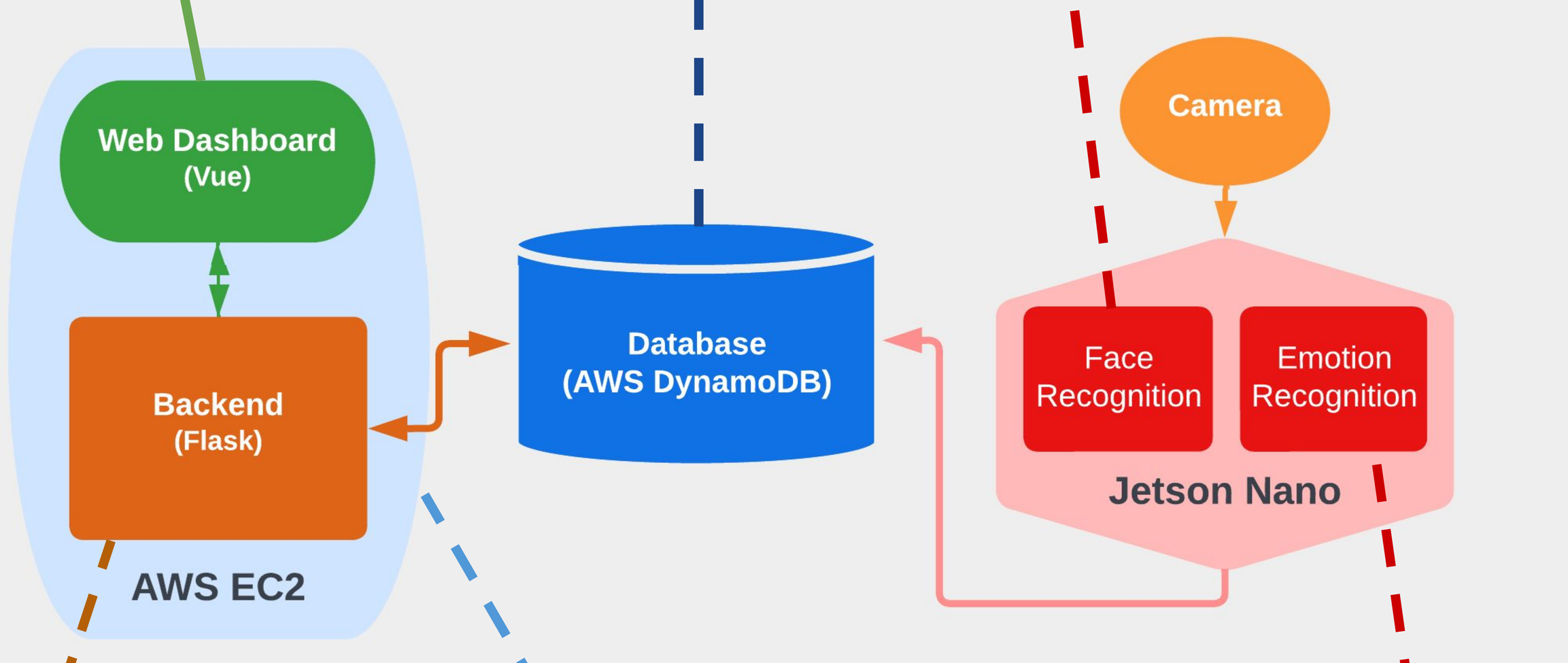
Vue.js
Google Developers Charts
AnyChart
Processing

DATABASE | DynamoDB

Store the data sent by Jetson Nano, including face & emotion recognition results.

Why DynamoDB?
Free + NoSQL

amazon DynamoDB



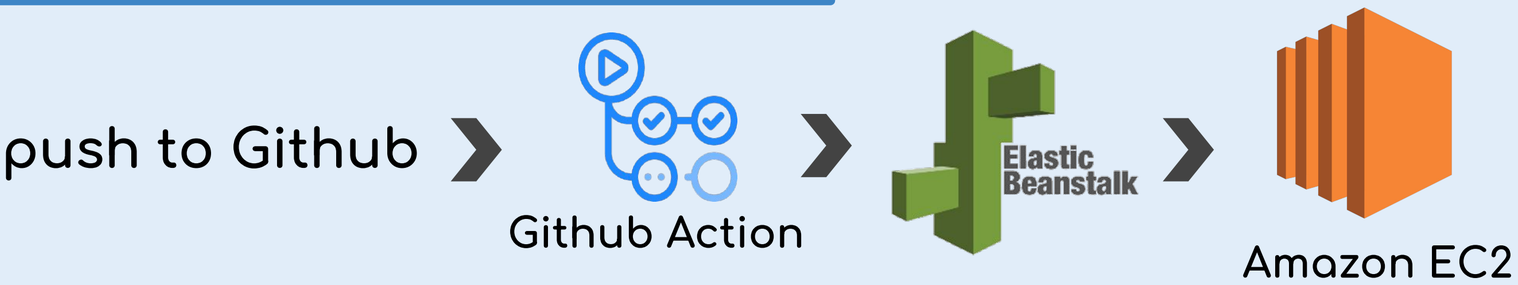
BACKEND | Flask

Handle frontend requests, do CRUD operations, and send back the results.

Flask

CICD

Auto build & deploy to EC2 with Github Action & Elastic Beanstalk.



EMOTION RECOGNITION

Detect student emotions with Yolo-v5+VGG and record to the database.