

University Polytechnic of Aguascalientes

Integrator Project

Team 4

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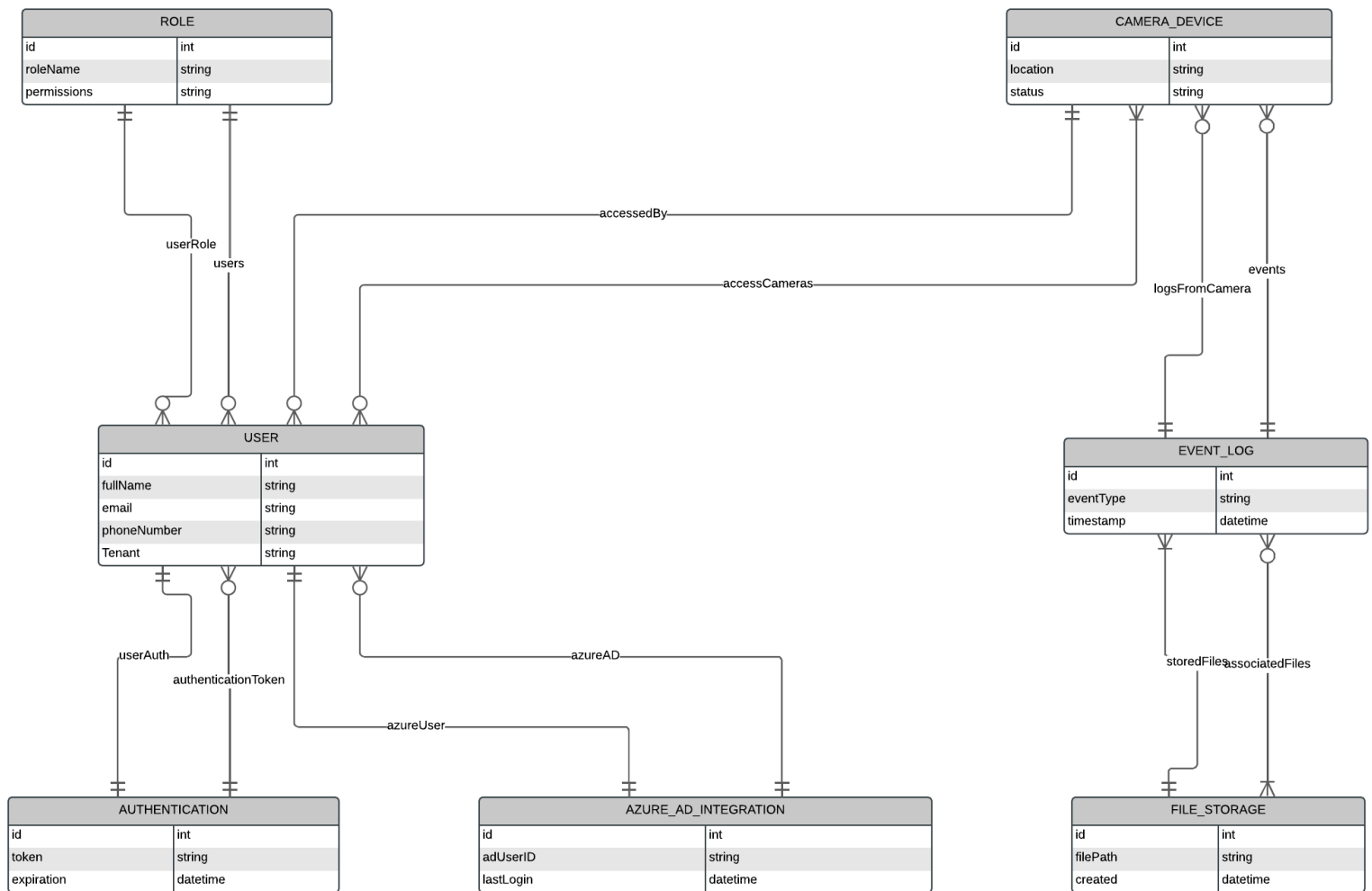
ISC09A

Computational Systems Engineering

October 30, 2024

Keystone Application Development

Entity-Relationship Diagram (ERD)



Key Relationships Summary:

USER is linked to **ROLE**, **AUTHENTICATION**, **AZURE_AD_INTEGRATION**, and **CAMERA_DEVICE**.

ROLE holds data on user roles and permissions, linking to **USER**.

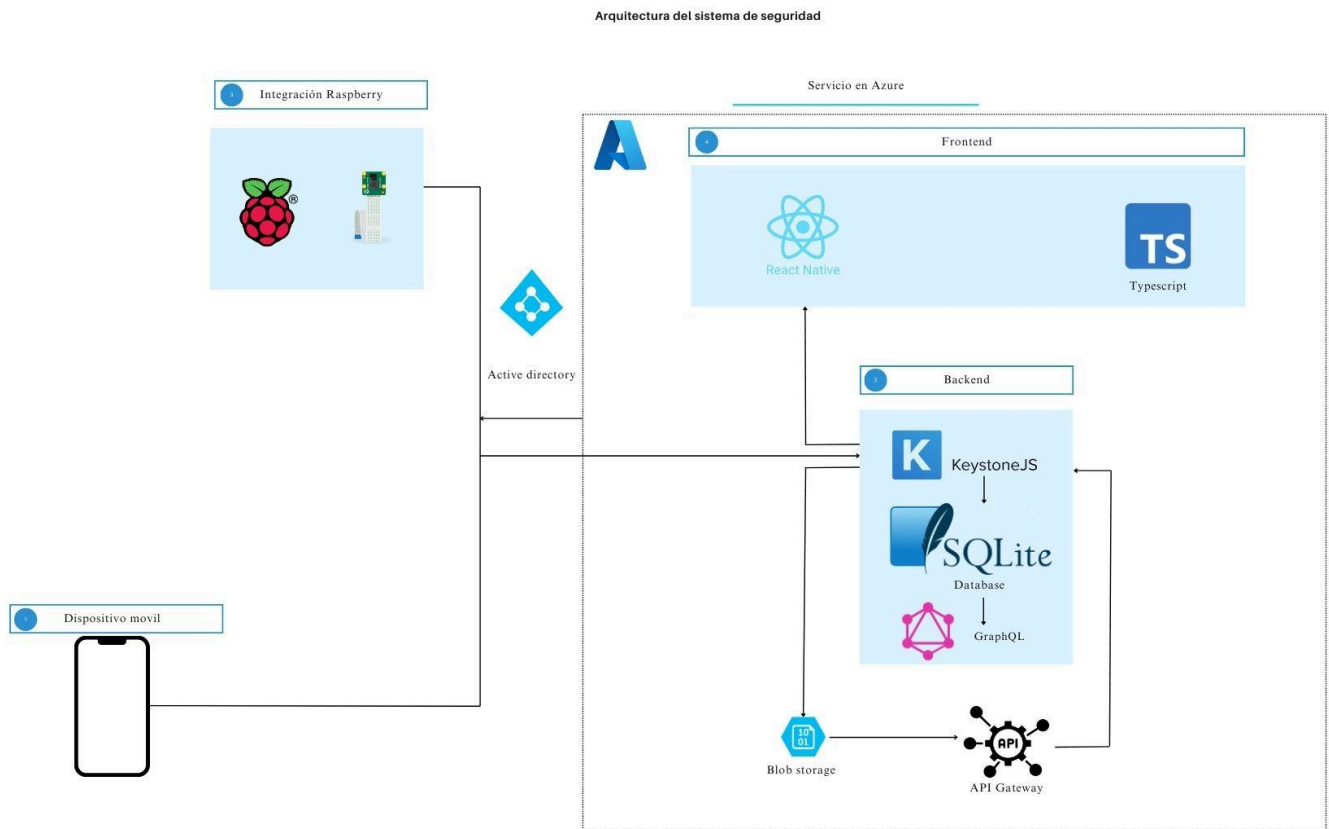
CAMERA_DEVICE tracks **EVENT_LOG** and links with **USER** for access control.

EVENT_LOG logs events, with links to **CAMERA_DEVICE** and **FILE_STORAGE** for event-specific files.

AUTHENTICATION and **AZURE_AD_INTEGRATION** manage user authentication, linking with **USER**.

FILE_STORAGE stores files associated with **EVENT_LOG**.

Architecture Diagram and Integrations



Business Plan and Documentation

MotionGuard

Description

MotionGuard is a smart surveillance solution designed for homes and small businesses. The device, built on a Raspberry Pi equipped with motion sensors and a camera, focuses on motion detection and sends notifications to users via a mobile app. Its goal is to provide an affordable, installation-free alternative for those needing to monitor small spaces.

Business Plan for SaaS Solution

Centralizing data storage in the cloud allows users to access their information from any device and location, maximizing convenience and accessibility. The event history functionality enables users to identify behavior patterns, such as specific times when movement is detected on their property. This capability helps users to monitor their spaces without constant surveillance, as the system provides them with a precise summary of when and where activity has occurred.

Ultimately, these functionalities are designed to safeguard the client's interests in a secure and scalable manner, ensuring the service can grow and adapt to meet individual and business needs.

Key Features

- Motion detection and real-time notifications to mobile devices.
- Event history, allowing users to consult a list of relevant events with the date and time of each incident.
- Multi-user access per camera, enabling multiple users to access the same camera.

Multitenancy Options

MotionGuard allows multiple users to be registered on a device, but only one owner/administrator of the surveillance system will have full permissions. Once the user and role are assigned, the "CameraDevice" table will grant or restrict access to the camera information for the user currently logged in, thanks to Azure Active Directory (AzureAD).

Subscription Model

There are three subscription models: Basic, Premium, and Admin, each with a different Raspberry Pi model.

- **Basic:** Includes the simplest Raspberry Pi, without the option to add more sensors. It offers 10 days of event storage, after which the events are automatically deleted. It comes with 5GB of cloud storage and no sensor scalability.
- **Premium:** Offers 30 days of event storage and 10GB of cloud storage. It is scalable, allowing the addition of one extra sensor for \$260.00 USD.

- **Admin:** Provides 50 days of event storage and 30GB of cloud storage. It is scalable up to two additional sensors for \$299.99 USD.

Model	Data storage	Sensor	Price	Storage
Basic	10 days of cloud storage for videos and photos before deletion	-	\$150.00 USD	5GB
Premium	30 days of cloud storage for videos and photos before deletion	1 sensor compatible with the device	\$260.00 USD	10GB
Admin	50 days of cloud storage for videos and photos before deletion	2 sensors compatibles with the device	\$299.99USD	30GB

1. Identified Competitors

- **Wyze Cam:** A low-cost surveillance system offering good image quality and motion detection, with optional cloud storage and SD card recording.
- **Ring:** Known primarily for its line of doorbell cameras, Ring offers high-resolution surveillance and integration options with other smart home devices. Its subscription enables cloud storage and advanced features.
- **SimpliSafe:** A more comprehensive security system that integrates cameras, sensors, and sirens, aimed at home and small business security. Its subscription model allows cloud storage and remote viewing.

Feature	Wyze Cam	Ring	SimpliSafe	MotionGuard
Initial Price	Low	Moderate to High	High	Low
Subscription Options	Up to \$600 mxn	Up to \$1,000 mxn	Up to \$4,930 mxn	Single, economical subscription
Cloud Access	optional, limited	Optional, limited	Optional, limited	Included
Sensor Customization	No	Limited	Only with full model	High
Event Storage	SD Card/Cloud	SD Card/Cloud	Limited Cloud	Cloud Only
Weather Resistance	Optional	Optional	Optional	No
Image Quality	Medium to High	High	Medium to High	Medium

Competitive Advantages of MotionGuard

- **Lower Cost:** MotionGuard maintains a lower and more accessible subscription cost than its competitors, as it focuses on affordability without sacrificing essential features.
- **Customization:** MotionGuard allows sensor customization for motion, humidity, temperature detection, and more, tailored to the user's specific needs, something competitors do not offer at this price point.
- **Centralized Cloud Storage:** Unlike many competitors relying on physical SD cards, MotionGuard provides full cloud storage, allowing real-time access without the need for additional components.

Disadvantages of MotionGuard

- **Lack of Weather Resistance:** Currently, MotionGuard does not have a weather-resistant casing, which limits its use in outdoor or high-dust, moisture, or extreme heat environments.
- **Image Quality:** MotionGuard's image quality is optimized for motion detection rather than high resolution, which may be a drawback for users seeking high-definition surveillance.

Market and Monetization Strategy

Market Target MotionGuard is designed for residential users, small businesses, and individuals seeking an affordable and uncomplicated surveillance solution. This market segment often requires reliable security without the high installation costs or complexity associated with traditional surveillance systems. By providing an accessible price point and easy setup, MotionGuard appeals to users who prioritize functionality and simplicity over high-end video quality, focusing on essential motion detection and alert capabilities.

Monetization Strategy MotionGuard's primary monetization strategy is based on a single, cost-effective subscription model, set at \$500 mxn, which offers users full access to all core features, including motion alerts, cloud-based event storage, and remote monitoring. In the future, we plan to introduce tiered subscription options, allowing users to access additional features as needed, such as enhanced alert options, advanced sensor capabilities, or integration with other smart home devices.

This straightforward pricing approach positions MotionGuard competitively, differentiating it from traditional, pricier surveillance services while ensuring steady revenue from users seeking an affordable and reliable security option.