IoT Multicloud Security System with Facial Recognition

Overview

This project aims to develop an advanced security system that leverages IoT devices, facial recognition technology, and multicloud infrastructure. The system will allow real-time monitoring, detection, and response to unauthorized access across multiple physical and cloud environments.

Functional Requirements

1. **IoT Device Management:** Facilitates remote monitoring, control, and automatic firmware updates for IoT devices, maintaining security with the latest patches.

    - **Fields:** IoT, Electronics

2. **Real-time Notification System:** Sends alerts via SMS, email, or mobile apps when unauthorized access is detected, with alert severity determining the escalation protocols for proper response.

    - **Fields:** Software, Networks

3. **Facial Recognition:** The system uses live video from IoT cameras and recognition algorithms to identify individuals, alerting when unauthorized persons are detected.

    - **Fields:** AI, Computer Vision

4. **Multicloud System:** Ensures data and computing resources are spread across multiple cloud providers to guarantee availability and fault tolerance.

- **Fields:** Cloud Computing, Distributed Systems

Non-Functional Requirements

1. **Scalability:** The system efficiently scales to accommodate growing numbers of IoT devices and users without degradation in performance.

2. **Reliability:** The system maintains continuous operation and remains resilient to failures, ensuring seamless functionality even when parts of the infrastructure face issues.

3. **Performance:** The system delivers prompt alerts and smooth operations, particularly during scenarios requiring rapid decision-making and low latency.

4. **Compliance:** The system provides the necessary logging and audit data to support adherence to privacy regulations, enabling effective data management and protection of individuals' privacy.

Resume

Section	Details
Overview	IoT-based security system leveraging multicloud infrastructure, real-time monitoring, and facial recognition.
Functional Requirements	1. **IoT Device Management** (IoT, Electronics) 2. **Real-time Notification System** (Software, Networks) 3. **Facial Recognition** (AI, Computer Vision) 4. **Multicloud System** (Cloud Computing, Distributed Systems)
Non-Functional Requirements	1. **Scalability** 2. **Reliability** 3. **Performance** 4. **Compliance**

Students:

- `Roberto Vicario` `744072`
- `Emanuele Andreu` `746784`