GUSTAVO ANDREY PATLAN CARTAGENA

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PROFESSIONAL PROFILE

Graduate in Mechatronics Engineering, soon to be certified, with a focus on software development, embedded systems, and hardware integration. Experienced in designing and implementing IoT solutions, process automation, and full-stack web development. Passionate about mobile operating systems, microcontrollers, Raspberry Pi, and technologies that bridge the physical and digital worlds. Aspires to grow as a developer in high-impact environments and eventually lead innovative technological projects with social purpose.

EDUCATION

Instituto Tecnológico de Morelia
Bachelor's in Mechatronics Engineering – Specialization in Control and Automation
Morelia, Michoacán │ Graduate, certification in progress (2025)

PROFESSIONAL EXPERIENCE

Laboratory Voucher Management System
Morelia, Michoacán │ Jan 2024 - Jun 2025

- Led the full development of an institutional web application to manage material vouchers in laboratories at the Instituto Tecnológico de Morelia.
- Conducted interviews with teachers, technical staff, and administrators for system design and coordinated training sessions for adoption.
- Backend: Python with Flask, deployed on PythonAnywhere.
- Frontend: HTML5, CSS3, JavaScript.
- Database: Cloud-hosted MySQL.
- Result: 40% increase in efficiency and reduction of manual errors in material management.

Smart Lockers with Web and Touch Interface
Programming Lead / Finalist in Technological Competition
Morelia, Michoacán │ Aug 2023 - May 2025

- Developed a smart locker system controlled by Raspberry Pi and microcontrollers, featuring electromagnetic locks and sensors.
- Real-time communication using MQTT.
- Backend: Python with Flask; Frontend: Responsive web (HTML, CSS, JS).
- Independent local touch interface programmed in Python.
- Database: MySQL.
- Notable participation in a technological competition; project was a finalist.

HIGHLIGHTED PROJECTS

TechExchange – Web Platform for Secure Mobile Device Trading
Backend Developer (teamwork) / Dec 2024 – Present

- Collaborated on developing a web platform aimed at improving transparency and security in mobile device transactions in Mexico.
- Implemented backend in Python with FastAPI, managing users, transactions, and connections with external APIs.
- Configured PostgreSQL database using Supabase, ensuring data integrity and performance.
- Developed security features: password hashing, token authentication, and data sanitization.
- Ongoing integration with courier services to automate logistics for pickup and delivery.

SKILLS AND TECHNOLOGIES

- **Languages and frameworks**: Python, C++, JavaScript, Flask, HTML5, CSS3, FastAPI.
- **Hardware**: Arduino, ESP32, Raspberry Pi.
- **Databases**: MySQL, PostgreSQL (Supabase).
- **Platforms and tools**: SolidWorks, Android Studio, PythonAnywhere, Azure.
- **Networking**: OSI model, communication protocols, client-server architecture.
- **Languages**: Spanish, Intermediate-Advanced English (B2) with study abroad experience.
- **Competencies**: Problem-solving, teamwork, continuous learning, adaptability, handling uncertainty.
- **Certifications**: Python, Machine Learning, Web Development, Application Development, SolidWorks, Microsoft Azure.