htcom.

PFE BOOK 2026

ABOUT US

Who We Are HTCOM (High Technology Communication) is an independent engineering company based in Tunis, Tunisia, dedicated to providing advanced telecom and digital infrastructure solutions.

We design, deploy, and maintain networks and industrial systems that enable connectivity, automation, and digital transformation. Operating across multiple technology domains, we serve both public and private clients with a commitment to innovation and technical excellence.

THE PROJECTS

PROJECT 01: IOT-TO-ERP INTEGRATION

Ref: HTCOM-26-01

Title: Design and Implementation of an Embedded System Connected to ERPNext

Project Description: The goal of this project is to bridge the gap between physical hardware and enterprise software. The student will design an embedded system (IoT device) capable of collecting real-time field data (e.g., sensor readings, machine status) and synchronizing it automatically with the ERPNext platform. This allows for automated inventory updates, maintenance alerts, and live production tracking.

PROJECT 01: IOT-TO-ERP INTEGRATION

Required Profile:

- Level: Bac +5 (Engineering / Master) or Bac +3 (Licence/Bachelor)
- Specialty: Embedded Systems, IoT, Electronics, or Software Engineering

Key Responsibilities:

- Select and program the appropriate microcontroller (ESP32, STM32, or Raspberry Pi).
- Develop firmware to handle sensor data acquisition.
- Implement secure communication protocols (MQTT or REST API) to transmit data.
- Develop a custom script or API within ERPNext (Frappe Framework) to visualize the data.

Technologies:

- Embedded C/C++, Python
- Microcontrollers (ESP32/STM32)
- ERPNext / Frappe Framework
- MQTT, REST API

PROJECT 02: GPS TELEMATICS & FLEET MANAGEMENT

Ref: HTCOM-26-02
Title: Development of a GPS Tracking Module Applied to ERPNext

Project Description: Logistics optimization is key for our clients. This project involves creating a comprehensive vehicle tracking solution that integrates directly into the ERPNext ecosystem. The system will track vehicle locations in real-time, calculate distances, and sync this data with ERPNext for automated expense reporting and asset management.

PROJECT 02: GPS TELEMATICS & FLEET MANAGEMENT

Required Profile:

- Level: Bac +5 (Engineering / Master)
- Specialty: Telecommunications, Geomatics, or Computer Science

Key Responsibilities:

- Interface a GPS/GPRS module with a microcontroller to capture location data.
- Send geospatial data to a central server.
- Develop a custom module within ERPNext to display vehicle locations on a map interface.
- Generate automated reports for trip logs and fuel consumption estimates.

Technologies:

- GPS/GSM/GPRS Modules
- Python / JavaScript
- ERPNext / Frappe Framework
- Google Maps API or OpenStreetMap

PROJECT 03: EDGE SECURITY INFRASTRUCTURE

Ref: HTCOM-26-03
Title: Deployment of a Next-Gen Firewall & UTM on Thin Client Smart Cloud Architecture

Project Description: Security at the edge of the network is critical. This project focuses on converting a Thin Client device into a powerful security gateway. The student will implement a robust Firewall and Unified Threat Management (UTM) system (based on solutions like pfSense or OPNsense) optimized to run on Smart Cloud hardware architecture.

PROJECT 03: EDGE SECURITY INFRASTRUCTURE

Required Profile:

- Level: Bac +5 (Engineering / Master)
- Specialty: Cybersecurity, Network Security, or Cloud Computing

Key Responsibilities:

- Research and select a lightweight firewall OS (pfSense/OPNsense) compatible with Thin Client specifications.
- Configure firewall rules, VPNs, and Intrusion Detection Systems (IDS/IPS).
- Optimize the "Smart Cloud" connectivity to ensure the device acts as a secure edge node.
- Perform penetration testing to validate the security of the configuration.

Technologies:

- Network Security (Firewalls, VPN, VLAN)
- pfSense / OPNsense
- Thin Client Hardware Architecture
- Linux / BSD

PROJECT 04: INTELLIGENT NETWORK OBSERVABILITY

Ref: HTCOM-26-04

Title: Development of a Network Monitoring Tool on Thin Client Smart Cloud Architecture

Project Description: To ensure high availability for our clients, we need proactive monitoring. This project involves building a dedicated monitoring probe using Thin Client hardware. The device will monitor network traffic, device health, and bandwidth usage, sending alerts and visualizing data via a cloud dashboard.

PROJECT 04: INTELLIGENT NETWORK OBSERVABILITY

Required Profile:

- Level: Bac +3 (Licence/Bachelor) or Bac +5 (Engineering / Master)
- Specialty: Computer Networks, Telecommunications, or IT Infrastructure

Key Responsibilities:

- Deploy a monitoring solution (e.g., Zabbix, Nagios, or Prometheus) on a Thin Client.
- Configure SNMP and other protocols to scrape data from network equipment.
- Create a centralized dashboard (Grafana or similar) for real-time visualization.
- Implement an alert system (Email/SMS) for network downtime.

Technologies:

- Network Monitoring (SNMP, ICMP)
- Zabbix / Prometheus / Grafana
- Linux Administration
- Shell Scripting / Python

PROJECT 05: DIGITAL KYC VERIFICATION SYSTEM

Ref: HTCOM-26-05

Title: Design and Implementation of a Secure Know Your Customer (KYC) Verification Platform

Project Description: This project aims to design and implement a digital Know Your Customer (KYC) system that allows online platforms to verify user identities securely and efficiently. The solution enables users to submit personal information and identity documents, performs automated document validation using OCR and biometric verification, and provides an administrative interface for reviewing and managing verification requests. The system helps reduce fraud, enhance trust, and support regulatory compliance.

PROJECT 05: DIGITAL KYC VERIFICATION SYSTEM

Required Profile:

- Level: Bac +5 (Engineering / Master) or Bac +3 (Licence / Bachelor)
- Specialty: Software Engineering, Information Systems, Cybersecurity, or Web Development

Key Responsibilities:

- Analyze functional and security requirements for identity verification.
- Design and implement the KYC system architecture.
- Develop user and admin interfaces for KYC submission and review.
- Implement document validation and biometric verification.
- Ensure data security and access control.

Technologies:

- Frontend: Angular or React
- Backend: NestJS / Node.js
- Database: PostgreSQL or MongoDB
- OCR & Biometrics: Tesseract, OpenCV, or API-based services
- Security: JWT, encryption

INTERNSHIP DETAILS & APPLICATION

Internship Details

- **Location:** Tunis, Tunisia
- **Work Model:** Hybrid Internship (A flexible blend of on-site presence in Tunis and remote work, to be defined with the supervisor).
- **Duration:** 4 to 6 months, starting February 2026.

How to Apply

To apply for a PFE, please submit the following documents via email:

- Curriculum Vitae (CV)
- Cover Letter (Mandatory)

Crucially, your application must mention the specific Project Reference Code (e.g., HTCOM-26-03) you are applying for in the subject line or body of the email.

Send applications to **contact@htcom.tn**

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