AmbuLink

INTELLIGENT HEALTHCARE LOGISTICS

JOB FAIR · IIT SFAX

# PFE Book 2026–2027

Do your final-year project at a startup that uses artificial intelligence to save lives.

**6 Engineering projects** **3 Business projects**

**Sfax · February – June 2027**

Patients · Ambulances · Clinics
**ambulink-lyart.vercel.app**

Contact
**ambulink.contact@gmail.com**

WHO WE ARE

# In an emergency, every minute counts.

Today, private ambulances and clinics still coordinate by phone, WhatsApp and paper. Families call several companies before finding a free ambulance, and the clinic doesn't know a patient is coming. **AmbuLink** is an AI platform that connects patients, ambulance companies and clinics in real time.

### Patient App
Request an ambulance in one tap and track it live.

### Ambulance App
Missions, fleet, crews, equipment and fuel.

### Clinic Platform
Patient file and arrival time before the patient arrives.

**1,000+**
missions handled

**0**
missions lost

**2**
awards in 2026 (Forum DSI, AI Forward Summit)

WHY DO YOUR PFE WITH US

## A real project, used in the field.

1. **Real impact**
   Your work is deployed and helps patients every day.

2. **AI and real data**
   Work on real mission data, not textbook cases.

3. **Mentored by the founders**
   Direct supervision from a team in AI, engineering and healthcare.

4. **Startup spirit**
   Autonomy, responsibility and a full view of the product.

**TEAM**

**Hazem Jarboui**, CEO · **Abderrahmen Zouari**, CTO · **Dr. Manel Elleuchi**, CMO, PhD engineer in IoT & AI. ALERE acceleration program, Startup Act pre-label.

# AI, data and automation

Duration: 4 to 6 months
Sfax · on-site or hybrid

ING-01 · AI · Operations research · Pair possible

## Intelligent dispatch and routing engine

Choose the best ambulance for each request, compute the fastest route and give a reliable arrival time, updated live.

- Learn from 1,000+ real missions to rank available ambulances
- Compare machine learning with an optimization model on a mission replay simulator
- Build routing on OpenStreetMap and an ETA prediction model
- Deploy the engine as an explainable API

**Technical challenge:** multi-objective decisions in real time (patient time, fleet coverage, crew workload).

**Target:** response time reduced by at least 10%, ETA error under 2 minutes.

Python · PyTorch · OR-Tools · OSRM · FastAPI

ING-02 · Computer vision · NLP · Pair possible

## Smart OCR onboarding: scan documents, fill our database

Ambulance companies and clinics send many documents. Scan them and add their data to AmbuLink automatically, with no manual typing.

- Extract data from company registrations, tax IDs, vehicle registration cards, insurance and staff licenses
- Handle French and Arabic, printed and handwritten text, photos taken by phone
- Classify each document, validate the fields and detect expired documents
- Fill the database automatically, with a review screen for doubtful fields

**Technical challenge:** reliable extraction from low-quality phone photos in two languages and scripts.

**Target:** 95%+ correct fields on key data, onboarding time divided by 5.

Python · OpenCV · Tesseract / PaddleOCR · LayoutLM · FastAPI

ING-03 · Data science · Business intelligence

## Predictive analytics: demand forecasting and fleet positioning

Predict where and when emergencies will happen, place ambulances in advance and give managers a clear dashboard.

- Forecast demand by area and hour (time series, spatio-temporal models)
- Recommend waiting positions with a coverage optimization model
- Simulate the time saved on historical data
- Build the manager dashboard: missions, response times, fleet use, revenue

**Technical challenge:** sparse data per area, and turning a forecast into a measurable decision.

**Target:** forecast better than the baseline, simulated response time reduced.

Python · Prophet / LSTM · GeoPandas · OR-Tools · Power BI

ENGINEERING TOPICS · 2/2

# Connected devices, security and cloud

Duration: 4 to 6 months
Sfax · on-site or hybrid

ING-04 · IoT · Embedded · Mobile · Pair possible

## Connected ecosystem: smartwatch alert and smart ambulance box

Connect patients and ambulances to the platform with devices: an SOS watch for patients and a sensor box inside each ambulance.

- Watch app: SOS button, location sharing, fall detection with motion sensors
- Ambulance box: GPS, fuel level, cabin and equipment temperature
- Reliable transmission with offline buffering (4G / LoRa, MQTT)
- Alerts and indicators in the patient and manager apps

**Technical challenge:** on-device AI with low battery use, and zero data loss in a moving vehicle.

**Target:** fall detection above 90%, position every 10 seconds, no data lost offline.

Wear OS / Flutter · TensorFlow Lite · ESP32 · MQTT · C/C++

ING-05 · Cybersecurity · Digital health · Pair possible

## Secure health data exchange with clinics (HL7 FHIR)

Exchange patient files with any clinic system using the international health standard, with security worthy of medical data.

- Model the patient file and missions with FHIR and build a connector for clinics
- Threat modeling, security audit and penetration tests
- Encryption, access control, patient consent and full audit trail
- Security policy and health-data compliance roadmap

**Technical challenge:** map real data to a strict standard while securing a live system.

**Target:** 100% valid FHIR exchanges, all critical vulnerabilities fixed.

HL7 FHIR · OAuth2 · OWASP · Burp Suite · Node.js / Java

ING-06 · Cloud · DevOps · Architecture

## Cloud-native platform ready for 500+ ambulances

Prepare AmbuLink to grow from one city to several countries, with high availability and real-time performance.

- Evolve the architecture toward scalable services and real-time messaging
- Containers, CI/CD and infrastructure as code
- Monitoring, alerting and service level objectives
- Load tests simulating 500+ ambulances live

**Technical challenge:** scale live tracking and notifications while keeping costs low.

**Target:** 500+ simulated ambulances with stable response times, 99.5% availability.

Docker · Kubernetes · Terraform · Prometheus / Grafana · k6

BUSINESS & MANAGEMENT TOPICS

# Growth, market and funding

Duration: 4 to 6 months
Sfax · on-site or hybrid

BUS-01 · Sales · Marketing · Pair possible

## Go-to-market and growth: B2B sales and digital marketing

Build the machine that brings new clients and users: ambulance companies and clinics on one side, patients and families on the other.

- Segment clients, define the ideal customer and the value proposition per segment
- Sales playbook, CRM pipeline, demos and pricing offers
- Content strategy and paid campaigns to reach patients
- Measure the funnel: leads, demos, clients, app sign-ups, cost per acquisition

**Key challenge:** one repeatable process that works in every new city.

**Target:** qualified pipeline built, new clients signed during the internship.

CRM · Meta Ads · LinkedIn · Analytics · Canva

BUS-02 · Strategy · International · Partnerships

## Expansion to Libya and MENA, with insurance partnerships

Prepare AmbuLink's next markets and new partners who can pay for medical transport.

- Study medical transport markets and regulation in Libya and 2–3 MENA countries
- Field interviews, market scoring and choice of pilot cities
- Map how insurers and mutual funds cover transport, design a partnership offer
- Market entry plan with budget and forecasts

**Key challenge:** little public data, so field interviews must drive solid decisions.

**Target:** 20+ interviews, a go / no-go per market, 3+ partner leads.

Market research · Interviews · Excel · Negotiation

BUS-03 · Finance

## Financial model, business plan and fundraising

AmbuLink is raising its first round. Investors expect a clear financial model and strong unit economics.

- 3-year financial model with scenarios and hiring plan
- Unit economics: acquisition cost, lifetime value, payback
- Valuation, investor file and data room
- Map funds, grants and programs, and support applications

**Key challenge:** credible forecasts for an early-stage startup with limited history.

**Target:** model validated by the founders and a mentor, applications submitted.

Excel · Financial modeling · Valuation · PowerPoint

JOIN US

# How to apply

### Who we're looking for

- Engineering: computer science, software engineering, data and AI, electrical and embedded systems
- Business: management, marketing, finance, sales
- Curious, autonomous, driven by impact

### What we offer

- A real topic, deployed in the field
- Direct mentoring by the founders
- Access to the project's data and tools
- A full experience in an award-winning startup

**1** **Choose your topic**

Up to two topics, by their code (for example: ING-02, BUS-01). Topics marked "Pair possible" can be taken by two students.

**2** **Send your application**

Your CV and a few lines of motivation to **ambulink.contact@gmail.com**
Subject: "PFE 2027 – [topic code] – First name Last name"

**3** **Interview with the team**

A short conversation about the topic, your skills and your expectations.

**4** **Start your PFE**

February 2027, in Sfax, for 4 to 6 months depending on your school.

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### Come and meet us at the AmbuLink stand

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**Every minute counts. Let's build it together.**