Campus Bot

Group 6 | https://github.com/SPMSHV/CSC510-S2-G6/tree/main/proj2

CampusBot provides a production-ready REST API for managing food orders, delivery fleet tracking, and user roles. We've built a clean, tested, well-documented backend that handles:

1. Order Management — Full CRUD for student food orders with status tracking
2. Fleet Tracking — Robot/delivery agent location, battery, and status management
3. User Roles — Support for Students, Vendors, Admins, and Engineers

Why This Matters: A solid backend is 70% of any delivery app. We've done the hard work: database design, validation, testing, CI/CD, and documentation.

Your Project 3 team gets a head start instead of starting from scratch.

What We Built

Core Backend (Milestones 1-4):

- 6 Core APIs: Orders, Robots/Fleet, Users, Restaurants, Auth, Telemetry
- RESTful Design: Clean endpoints with proper HTTP methods
- OpenAPI 3.0 Spec: Interactive Swagger UI at /api-docs
- PostgreSQL Schema: Production-ready with indexes
- In-Memory Mode: Quick dev setup (no DB required)
- Input Validation: Joi schemas for all endpoints

Quality & DevOps ⭐:

- 22 test suites, 410+ test cases
- TypeScript — Full type safety
- GitHub Actions CI — Auto lint, test, build
- Docker Ready — docker-compose up
- ESLint + Prettier — Consistent code style

Forum

GitHub PR

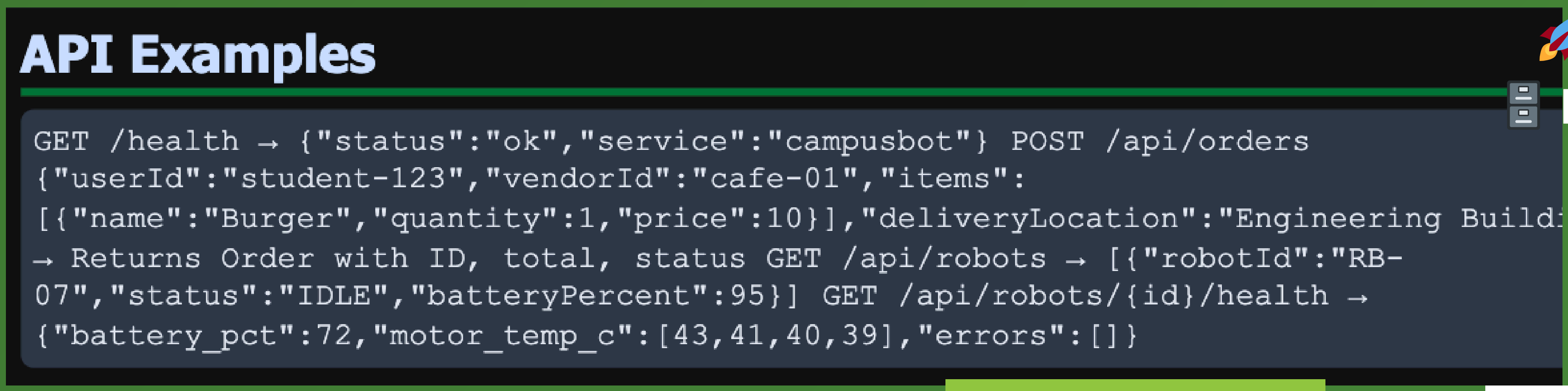
Release 2(Planned)

- Robot health monitoring & alerting
- Geofence & campus policy engine.
- Remote-control & maintenance workflows
- Real-time telemetry (WebSocket/MQTT)

🚀 Extension Ideas for Project 3:

📱 React/React Native mobile app
🗺️ Interactive map with live robot tracking
📊 Analytics dashboard with delivery metrics
🔐 User authentication (OAuth2/JWT)
💳 Payment processing (Stripe)
🎨 Vendor management portal

Watch Demo 🔗



API Examples

```
GET /health → {"status":"ok","service":"campusbot"} POST /api/orders
{"userId":"student-123","vendorId":"cafe-01","items":
[{"name":"Burger","quantity":1,"price":10}],"deliveryLocation":"Engineering Buildi
→ Returns Order with ID, total, status GET /api/robots → [{"robotId":"RB-
07","status":"IDLE","batteryPercent":95}] GET /api/robots/{id}/health →
{"battery_pct":72,"motor_temp_c":[43,41,40,39],"errors":[]}
```

Tech Stack

🚀 Backend: Node.js 18 + Express + TypeScript
🗄️ Database:PostgreSQL 15 (optional in-memory)
🧪 Testing: Jest + Supertest
📊 API Docs: OpenAPI 3.0 + Swagger UI
🐳 Container: Docker + Docker Compose
🔧 Quality: ESLint + Prettier
📈 CI: GitHub Actions

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