



FastAPI WebSocket Progress Tracker - Complete 3-Day Implementation Guide

Quick Answer: YES, you can absolutely build this in 3 days!

Based on my research, creating a FastAPI WebSocket application for tracking asset processing progress is definitely achievable in 3 days, especially with the excellent Hindi learning resources available^[1] ^[2] ^[3] ^[4]. Here's your complete roadmap:

Project Requirements Analysis

Your insurance asset processing system needs:

- **Real-time progress tracking** showing percentage completion
- **Asset counting** (processed vs remaining)
- **Live asset ID display** as each completes processing
- **WebSocket communication** between backend and frontend
- **PostgreSQL integration** for asset data
- **Postman testing capabilities**

Learning Timeline & Resources

Best Hindi YouTube Tutorials Found:

1. **FastAPI Tutorial in Hindi - Kritim Yantra**^[1] - Perfect introduction with practical examples
2. **FastAPI Full Course - pip install programmer**^[4] - Comprehensive 8+ hour course with authentication
3. **FastAPI PostgreSQL CRUD in Hindi**^[5] - Database integration tutorial
4. **FastAPI WebSocket Implementation**^[6] - Real-time communication setup

3-Day Implementation Plan

The guide above provides:

Day 1: FastAPI & WebSocket Fundamentals (8-10 hours)

- **Morning:** FastAPI basics, installation, first API endpoints
- **Afternoon:** WebSocket connections, basic real-time communication
- **Key Learning:** Using the Hindi tutorials for core concepts^[1] ^[2]

Day 2: PostgreSQL Integration & Progress Tracking (8-10 hours)

- **Morning:** Database setup, SQLAlchemy models, async operations
- **Afternoon:** Background task processing, progress calculation logic
- **Key Implementation:** Real-time progress broadcasting via WebSocket^[7] ^[8]

Day 3: Frontend Integration & Testing (8-10 hours)

- **Morning:** Enhanced HTML interface with progress bars
- **Afternoon:** Postman WebSocket testing, debugging, optimization

Technical Architecture

Your system will use:

- **FastAPI** with WebSocket support for real-time communication^[6] ^[9]
- **Background Tasks** for processing insurance calculations^[10] ^[11]
- **Connection Manager** to handle multiple WebSocket clients^[6] ^[12]
- **PostgreSQL** with SQLAlchemy for asset data storage^[13] ^[14]
- **Progress Tracking Class** to monitor processing status^[7] ^[15]

Key Features Implementation

Real-time Progress Updates

The system broadcasts JSON messages like:

```
{
  "percentage": 45.2,
  "processed": 1137,
  "total": 2500,
  "asset_id": 1138,
  "insurance_amount": 1760000.0
}
```

Insurance Calculation Logic

For each asset processing:

- Calculate 20-25% of total company value
- Example: \$8M company value → \$2.2M insurance payout
- Update database with processed status
- Broadcast completion to all connected clients

Success Factors

Why 3 Days is Realistic:

1. **Focused Scope:** Core functionality without unnecessary features
2. **Excellent Resources:** High-quality Hindi tutorials available^{[1] [2] [3]}
3. **Modern Framework:** FastAPI's simplicity and built-in WebSocket support^[16]
4. **Proven Patterns:** Similar implementations documented^{[7] [17] [8]}

Learning Efficiency Tips:

- Use **Hindi tutorials** for faster concept understanding^{[1] [2]}
- **Test frequently** - verify each component as you build
- **Start simple** - basic functionality first, enhancements later
- **Follow the guide** - structured approach prevents overwhelm

Postman Testing Strategy

The WebSocket endpoint (`ws://localhost:8000/ws`) can be tested in Postman to:

- Monitor real-time progress messages
- Verify asset ID broadcasts
- Test connection handling
- Validate JSON message format

Expected Outcomes

By the end of 3 days, you'll have:

- ✓ Fully functional FastAPI WebSocket server
- ✓ Real-time progress tracking system
- ✓ PostgreSQL database integration
- ✓ Interactive web interface
- ✓ Postman-tested WebSocket communication

- ✓ Background task processing for insurance calculations

The combination of FastAPI's modern architecture^{[18] [19]}, excellent Hindi learning resources^{[1] [2] [3]}, and this structured approach makes your 3-day timeline not just possible, but quite achievable. Focus on the core functionality first, and you'll have a working system that can be enhanced over time.

Good luck with your freelancing project! ☺

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