Studio338 AI Intelligence System

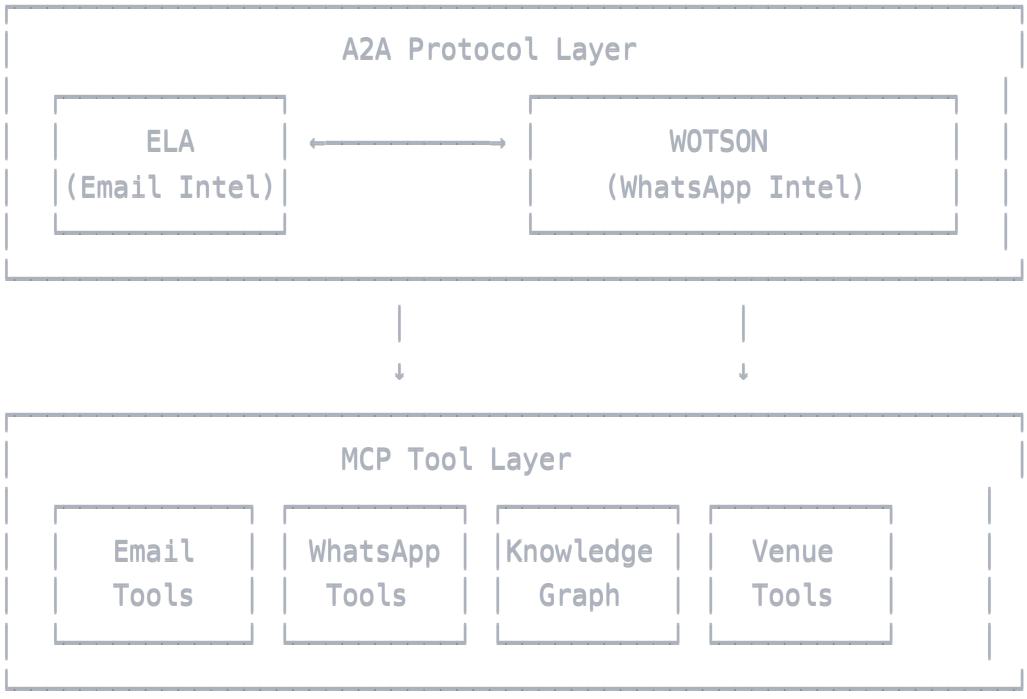
An advanced multi-agent system for comprehensive venue operations management, combining email intelligence and WhatsApp monitoring with A2A+MCP protocol integration.

🎯 Overview

Studio338 AI Intelligence transforms venue communication management through intelligent agents that:

- Process historical emails to build institutional knowledge (ELA)
- Monitor WhatsApp groups for real-time operational intelligence (WOTSON)
- Collaborate seamlessly using A2A protocols
- Access specialized tools through MCP servers
- Maintain complete local control and privacy

🏗️ Architecture



🚀 Quick Start

Prerequisites

- macOS (latest version recommended)
- Python 3.11+
- Node.js 18+ (for dashboard)

- External drive mounted at `/Volumes/Studio338Data`
- WhatsApp Business API access

Installation

```bash
# Clone repository
git clone https://github.com/yourusername/studio338-ai-intelligence.git
cd studio338-ai-intelligence

# Create virtual environment
python -m venv venv
source venv/bin/activate  # On macOS

# Install dependencies
pip install -r requirements.txt

# Set up configuration
cp .env.example .env
# Edit .env with your credentials

# Initialize database
python scripts/setup/init_project.py

# Start the system
python -m app.main
```

🔧 Configuration

Environment Variables

Create a `.env` file with:

env

```
# Agent Configuration
ELA_AGENT_ID=ela-studio338-001
WOTSON_AGENT_ID=wotson-studio338-001

# Email Configuration
ICLOUD_EMAIL=your-email@icloud.com
ICLOUD_APP_PASSWORD=your-app-specific-password

# WhatsApp Configuration
WHATSAPP_API_URL=http://localhost:3000
WHATSAPP_API_TOKEN=your-token

# Storage Configuration
EXTERNAL_DRIVE_PATH=/Volumes/Studio338Data
DATABASE_PATH=/Volumes/Studio338Data/studio338.db

# MCP Servers
EMAIL_MCP_SERVER=http://localhost:8001
NLP_MCP_SERVER=http://localhost:8002
KNOWLEDGE_MCP_SERVER=http://localhost:8003
VENUE_MCP_SERVER=http://localhost:8004
```

📁 Project Structure

```
studio338-ai-intelligence/
├── agents/                  # Core AI agents
│   ├── base/               # Base agent architecture
│   ├── studio338/          # Venue-specific agents
│   └── collaboration/      # Agent collaboration
├── app/                     # FastAPI application
│   ├── routers/           # API endpoints
│   ├── services/          # Business logic
│   └── schemas/           # Data models
├── scripts/               # Utility scripts
│   ├── setup/            # Setup automation
│   └── maintenance/      # System maintenance
├── deployment/           # Production configs
└── docs/                # Documentation
```

🤖 Agent Capabilities

ELA (Email Learning Agent)

- Processes historical email archives

- Extracts operational patterns and procedures
- Builds institutional knowledge graph
- Provides historical context for decisions

WOTSON (WhatsApp Operations Intelligence)

- Monitors venue WhatsApp groups
- Detects urgent situations
- Extracts equipment and personnel updates
- Coordinates real-time responses

🔐 Security & Privacy

- All data processing occurs locally
- No cloud dependencies for core operations
- Encrypted storage on external drive
- Audit logs for all agent decisions
- GDPR-compliant data handling

📊 Monitoring & Observability

Access the dashboard at `http://localhost:3000` to:

- Monitor agent activities
- View knowledge graph visualizations
- Track system performance
- Review decision logs

🛠️ Development

Running Tests

bash

```
# Unit tests
pytest tests/unit/

# Integration tests
pytest tests/integration/

# Full test suite
pytest
```

Adding New Capabilities

1. Define new skills in agent cards
2. Implement handlers in agent classes
3. Register with A2A protocol manager
4. Add corresponding MCP tools if needed

📚 Documentation

- Architecture Overview
- Agent Development Guide
- Deployment Guide
- API Reference

🤝 Contributing

Please read CONTRIBUTING.md for details on our code of conduct and the process for submitting pull requests.

📄 License

🙏 Acknowledgments

- Built with Claude Sonnet 4 assistance
- Leverages MCP and A2A protocol standards
- Inspired by production venue management needs