AI Trading System – Master Plan

# System Objective

Design a fully autonomous AI-powered trading assistant that:  
- Scans the entire U.S. stock market (focusing on low-float, small caps, high gainers)  
- Uses multi-source market data (technical, dark pool, options, sentiment, fundamentals)  
- Generates real-time trade signals with AI scoring, confidence levels, and risk metrics  
- Operates 24/7 and sends automated alerts to Telegram, Discord, and UI  
- Evolves via self-learning, swarm logic, and a GPT council

# Core Modules & Functions

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| Module | Description |
| 📈 Market Scanner | Full-market scanner using technical, volume, float, and gain filters |
| 🎯 Trade Signal Engine | Filters & ranks candidates based on multi-timeframe alignment, volume spikes, news |
| 🤖 GPT Council | Multiple GPT agents analyze and vote on each trade |
| 📊 Grading System | Assigns grades based on expected % gain, win rate, risk/reward, and AI confidence |
| 🧠 Self-Learning Debugger | Logs failed trades and suggests strategy refinements |
| 🧬 Auto-Evolver | Learns from trade logs and adjusts weights & thresholds automatically |
| 🛰 Market Conditions AI | Adds macro filters (VIX, S&P trend, sector rotation, interest rates) |
| 💬 Sentiment Engine | Aggregates Reddit, Twitter, news, and unusual options activity |
| 📡 Alerts/Notifications | Sends live signals via Telegram + Discord with analysis and expected outcomes |
| 📺 UI Dashboard | Shows live signals, scores, equity curve, stats, filters, debug feed |
| 🧪 Backtester + Analyzer | Runs historical testing and tracks win rates, hold time, and profitability |

# APIs Required (Free + Optional Paid)

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| API Source | Purpose | Free? | Notes |
| Polygon.io | Quotes, float, volume, fundamentals | Paid | https://polygon.io |
| Finnhub | Stocks, news, social sentiment | Free tier | https://finnhub.io |
| QuiverQuant | Congressional, insider, sentiment | Limited | https://quiverquant.com |
| Tiingo | Historical prices, earnings, sentiment | Limited | https://www.tiingo.com/ |
| Twelve Data | Technical indicators & real-time data | Limited | https://twelvedata.com |
| Quandl | Economic indicators, macro data | Some | https://www.quandl.com |
| Reddit/Twitter API | Sentiment extraction | Open methods | Via scraping or 3rd-party NLP |
| OpenAI | GPT Council, grading, explanations | Paid | https://platform.openai.com |