## 

**Practicum - I**

**Automated Crypto Trading Bot**

**Product Implementation Study**

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## 1. Executive Summary

This case study examines the practical implementation of an automated crypto trading bot built on top of MetaTrader 5 (MT5). It describes the product, outlines an implementation approach, evaluates expected business and user impacts, presents illustrative financial scenarios, and recommends actions to increase the product's chance of success.

Key finding: An MT5-based trading bot addresses a specific market niche—users who prefer broker-mediated execution and the MT5 ecosystem. With a focused implementation and a hybrid deployment model (managed hosting + self-hosted option), the product can deliver measurable business value in user engagement, revenue and differentiation versus exchange-API platforms.

## 2. Product Overview

The Product is a web-based application that connects to a running MetaTrader 5 terminal and enables users to start/stop an automated trading bot for crypto instruments. Core features include bot configuration (lot size, SL/TP, strategy parameters), real-time watchlist and market ticks, a crypto news feed, and trade history / audit logs. The bot uses the MT5 Python API to place and manage orders.

## 3. Business Objectives

1. Deliver an automated trading solution for traders who require broker-ordered execution via MT5.
2. Provide reliable risk controls (SL/TP and connection fail-safes) to reduce manual monitoring.
3. Create recurring revenue through subscriptions, managed hosting fees, or broker referral arrangements.
4. Differentiate by offering broker-native features (precise margin handling, broker order types, and audit trails).

## Implementation Phases

**MVP (core):**

* MT5 connect/login using demo account.
* Start/Stop bot and basic strategy parameters (lot, SL, TP).
* Watchlist with live ticks and trade history.
* Secure credentials storage and basic audit logging.

**Phase 2 (Scale & Usability):**

* Back testing and replay on historical ticks.
* Managed MT5 hosting option and preconfigured Windows images.
* Strategy templates (DCA, Momentum) and improved UI.

**Phase 3 (Growth & Monetization):**

* Signal marketplace and copy-trading.
* Multi-broker support and premium analytics.
* Integrations for KYC/AML and regulatory compliance in target markets.

## 6. Use Cases & User Stories

1. Automated Execution: A trader configures a momentum strategy with SL and TP, starts the bot, and the bot executes trades 24/7 with minimal supervision.
2. Risk-Controlled Trading: A trader defines strict SL/TP and maximum drawdown; the bot enforces these constraints and auto-stops on breaches.
3. Strategy Validation: A trader runs backtest/replay on historical MT5 ticks to validate the strategy before enabling it on a demo account.
4. Managed Onboarding: A novice user opts for a vendor-hosted demo account; they configure a simple template and observe bot behavior without local MT5 setup.

## 7. Impact Analysis

7.1 User Impact

The bot will create direct benefits for users:  
**Time savings:** Automated execution reduces the need for manual monitoring and order placement.  
**Emotional discipline:** Removes fear/greed-driven manual decisions by enforcing predefined rules.  
**Accessibility:** Enables users to trade outside local hours with continuous market monitoring.  
**Risk management:** Automated SL/TP and fail-safes reduce the risk of unmanaged losses.

7.2 Business Impact

Expected benefits for the product owner and stakeholders:  
**Recurring revenue:** Subscription and managed-hosting fees create predictable revenue streams.  
**Customer acquisition:** Targeting MT5 users and brokers creates a niche, addressable market with lower acquisition friction.  
**Differentiation:** Broker-native execution and auditability are strong selling points compared to exchange-only solutions.  
**Operational leverage:** Once core automation is built, adding strategies and broker profiles has low incremental cost.

## 8. Financial Scenarios (Illustrative)

Assumptions used for illustration:

* Monthly subscription price (average): $15 per user.
* Variable cost per active user (hosting, broker fees): $5 per user per month.
* Fixed annual operational cost (support, infra, maintenance): $60,000.

These are examples of values for scenario planning and should be adapted to actual operational data.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Scenario | Active Users | Annual Revenue (USD) | Annual Gross (USD) | Annual Net (USD) |
| Conservative | 200 | 36,000 | 24,000 | -36,000 |
| Moderate | 2,000 | 360,000 | 240,000 | 180,000 |
| Aggressive | 10,000 | 1,800,000 | 1,200,000 | 1,140,000 |

Interpretation: Under conservative assumptions the product requires either higher pricing or additional revenue streams (managed hosting, broker partnerships) to break even. Moderate and aggressive scenarios show healthy profitability once user scale grows and fixed costs are amortized.

## 9. Key Performance Indicators (KPIs)

* Monthly Active Users (MAU) and Number of Active Bots
* Average Revenue Per User (ARPU)
* Churn Rate and Customer Lifetime Value (LTV)
* System Uptime and Order Execution Success Rate
* Average Time to Resolve Trade Errors (MTTR)
* Number of Trades Executed per Day and Average P&L per Trade

## 10. Risks & Mitigations

See details in Risk Register.

## 11. Monitoring & Success Criteria

Monitor the following to evaluate product success over the first 12 months:

* Bot uptime and execution reliability.
* MAU and retention cohorts.
* Revenue growth and CAC payback period.
* Support tickets related to trade execution and MT5 connectivity.

## 12. Recommendations

* Begin with a managed demo offering to reduce technical friction and accelerate user trials.
* Negotiate partnerships with 2–3 brokers to expand symbol coverage and provide co-marketing opportunities.
* Offer tiered pricing: Basic (self-hosted), Pro (managed hosting), Enterprise (premium analytics + support).
* Invest in back testing and replay features early to help users validate strategies and build trust.
* Prioritize reliability and observability: invest in logging, monitoring, and clear error messages for execution failures.

## 13. Conclusion

An MT5-based crypto trading bot can attract a focused segment of traders who value broker-level execution and the MT5 ecosystem. With a hybrid delivery model and careful attention to onboarding, the product can become a defensible offering in the automation market. Financial viability depends on achieving scale or unlocking higher-margin revenue streams (managed hosting, broker referral fees).