Automated Crypto Trading Bot

## **1. Introduction**

### **1.1 Purpose**

This document outlines the vision and scope for a new software product: an automated trading Bot for cryptocurrency instruments on the MetaTrader 5 (MT5) platform. This vision document serves as a high-level guide for the development team and stakeholders, ensuring a shared understanding of the product's goals, features, and constraints.

### **1.2 Product Overview**

The Automated Crypto Trading Bot is a web-based application designed to empower users with a simple, secure, and effective tool for automated cryptocurrency trading. The application will interface with the MT5 platform to execute and manage trades based on user-defined parameters, freeing users from the need for constant market monitoring.

## **2. Stakeholders and User Personas**

### **2.1 Key Stakeholders**

* **Product Owner**

Responsible for defining the product vision and features.

* **Development Team**

The team responsible for building and maintaining the software.

* **Quality Assurance (QA) Team**  
  The team responsible for testing and ensuring the product's quality.

### **2.2 User Personas**

* **The Novice Trader**A user new to automated trading. They need a straightforward interface to set up and run a Bot with minimal complexity. They rely on the provided news and market data to learn and make informed decisions.
* **The Experienced Trader**  
  A user with a good understanding of trading strategies. They require a robust platform to configure detailed Bot parameters and monitor trades in real-time. They value security and reliability above all.

**3. Product Vision**

The vision is to create a seamless and accessible platform for automated crypto trading. The Bot will provide users with a reliable tool to execute their trading strategies while maintaining full control over their account. The application will be a hub for informed decision-making, offering real-time market data and curated news alongside powerful automation features. We will make automated trading more approachable and trustworthy for a wide range of users, from beginners to experienced traders.

## **4. Key Features**

Based on the provided requirements, the core features of the product will include:

* **User Management**

Secure account creation, login, and authentication.

* **Bot Control & Configuration**

The ability to start, stop, and configure Bot parameters such as lot size, stop loss, take profit, and strategy rules.

* **Real-time Market Data**

A dashboard displaying live price data for various crypto symbols, along with a customizable watchlist.

* **Curated News Feed**

A dedicated section providing the latest crypto-related news from external sources.

* **Trade History**  
  A comprehensive record of all Bot-executed trades, including open and closed positions, and profit/loss data.

## **5. Project Scope**

The initial release of the Automated Crypto Trading Bot will focus on core functionality to ensure a stable and reliable product. The scope for the Minimum Viable Product (MVP) includes:

* **In Scope:**
* Secure user registration and login.
* Configuration and execution of a single, basic trading strategy (e.g., a simple moving average crossover).
* Integration with a single MT5 account per user.
* Real-time market data display for a predefined list of crypto symbols.
* A news feed with curated cryptocurrency news.
* Basic trade history logging and display (open/closed trades, profit/loss).
* Responsive web interface for both desktop and mobile.
* **Out of Scope (for the MVP):**
* Support for multiple MT5 accounts per user.
* Advanced trading strategies, backtesting, or strategy optimization tools.
* Integration with other trading platforms (e.g., MetaTrader 4, TradingView).
* Support for non-crypto assets (forex, stocks, indices).
* Social trading features or community forums.
* Complex analytics or performance reporting beyond basic profit/loss.

## **6. Assumptions and Constraints**

The development and deployment of the Bot will be guided by the following assumptions and constraints:

* **Assumptions**
  + Users will have a broker account that supports crypto trading on the MT5 platform.
  + The system will support Both demo and real MT5 accounts.
  + The Bot will only trade spot/CFD crypto instruments supported by the broker on MT5.
* **Constraints**
  + The MT5 terminal must be installed and running on the server where the Bot is deployed.
  + Bot strategies are limited to the functionality available through the MT5 Python API.
  + The project scope is limited to cryptocurrency assets and does not include forex, indices, or stocks

## **7. Non-Functional Requirements**

To ensure the product meets user expectations, the following non-functional requirements are critical:

* **Performance**

Market data updates must be near real-time, with a delay of less than one second.

* **Availability**

The trading Bot and related APIs must maintain 99.5% availability during trading hours.

* **Security**

All sensitive user data, including credentials and MT5 account details, must be securely stored using hashing and encryption.

* **Scalability**

The system must be able to support multiple concurrent users running their Bots independently without performance degradation.

* **Usability**

The front-end user interface must be responsive and accessible on Both desktop and mobile devices.

* **Auditability**  
  All trade actions and configuration changes must be logged for traceability and auditing purposes.

## **8. Risks and Mitigation**

The following are the identified risks for this project along with proposed mitigation strategies:

|  |  |  |  |
| --- | --- | --- | --- |
| **Risk** | **Probability** | **Impact** | **Mitigation Strategy** |
| **MT5 API changes** | Medium | High | Conduct a thorough review of the MT5 Python API documentation and community forums every month. Develop a flexible API wrapper to abstract the underlying API and minimize changes to the core application logic. |
| **Security breach** | Low | High | Implement a robust security protocol including encryption of sensitive data, regular security audits, and adherence to best practices for secure coding and data storage. |
| **Performance issues under load** | Medium | Medium | Conduct stress testing before launch to identify bottlenecks. Implement a scalable cloud infrastructure (e.g., using microservices) to handle increased user concurrency. |
| **User adoption is slower than expected** | Medium | Medium | Launch a targeted marketing campaign to reach the identified user personas. Offer a free demo account or a limited-time free trial to attract new users. |

## **9. Success Metrics and Definition of Done**

The project will be considered successful if it meets the following measurable objectives:

* **Product Performance:** The application's APIs must demonstrate an average response time of less than 500ms under a load of 100 concurrent users.
* **System Availability:** The trading bot and its associated services must maintain a 99.5% uptime during trading hours over the first three months of operation.
* **User Adoption:** We aim to have 1,000 active users within the first six months of launch.
* **Security:** The system must pass a third-party security audit with zero critical vulnerabilities identified.
* **Quality:** The system will have fewer than 5 high-severity bugs reported by the QA team during the final month of testing.