

# **IoT Device Configuration Patent Application**

## **United States Patent Application**

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## **Title of Invention**

SYSTEM AND METHOD FOR AUTOMATED CONFIGURATION OF INTERNET OF THINGS (IoT) DEVICES IN ENTERPRISE ENVIRONMENTS

## **Cross-Reference to Related Applications**

This application claims priority to U.S. Provisional Application No. 63/281,459, filed March 15, 2023.

## **Field of the Invention**

[0001] The present invention relates generally to Internet of Things (IoT) device management, and more particularly to systems and methods for automated configuration and optimization of IoT devices within enterprise environments using machine learning algorithms.

## **Background**

[0002] Enterprise IoT deployments often involve hundreds or thousands of devices requiring individual configuration and ongoing management. Traditional manual configuration methods are time-consuming, error-prone, and lack scalability for large-scale implementations.

[0003] Existing automated solutions typically rely on predefined templates that fail to account for dynamic environmental conditions and specific operational requirements of different enterprise contexts.

## **Summary of the Invention**

[0004] The present invention provides systems and methods for intelligent, automated configuration of IoT devices using machine learning algorithms that optimize device settings based on operational

context, environmental conditions, and enterprise-specific requirements.

[0005] In one aspect, the invention includes a configuration management system that:

- Automatically discovers and identifies IoT devices on enterprise networks
- Analyzes operational patterns and environmental data
- Generates optimized device configurations using machine learning models
- Implements configurations across multiple devices simultaneously
- Monitors performance and adjusts settings in real-time

## **Detailed Description**

[0006] The system comprises:

[0007] A device discovery module that:

- Scans enterprise networks for IoT devices
- Identifies device types, capabilities, and current configurations
- Establishes secure communication channels with devices
- Maintains device inventory and status information

[0008] A machine learning engine that:

- Processes historical performance data
- Analyzes environmental sensor readings
- Evaluates operational patterns
- Generates optimized configuration parameters
- Continuously refines configuration models

[0009] A configuration management module that:

- Implements generated configurations
- Validates successful application
- Monitors device performance
- Triggers automatic adjustments
- Maintains configuration history

## **Claims**

What is claimed is:

A computer-implemented method for automated configuration of IoT devices, comprising:

- Discovering IoT devices on an enterprise network
- Collecting operational and environmental data
- Generating optimized device configurations using machine learning
- Implementing configurations across multiple devices
- Monitoring performance and adjusting settings

The method of claim 1, wherein generating optimized device configurations comprises:

- Analyzing historical performance data
- Evaluating environmental conditions
- Applying machine learning algorithms
- Validating configuration parameters
- Generating device-specific settings

A system for automated IoT device configuration, comprising:

- A device discovery module
- A machine learning engine
- A configuration management module
- Data collection sensors
- Network communication interfaces

## **Abstract**

A system and method for automated configuration of Internet of Things (IoT) devices in enterprise environments using machine learning algorithms. The system discovers devices, analyzes operational patterns and environmental data, generates optimized configurations, and implements settings across multiple devices simultaneously. Machine learning models continuously refine configurations based on performance monitoring and real-time adjustments.

## **Inventors' Declaration**

We hereby declare that:

We believe we are the original inventors of the subject matter which is claimed.

We have reviewed and understand the contents of this application.

We acknowledge the duty to disclose information material to patentability.

Executed on: September 15, 2023

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### **Attorney Certification**

I hereby certify that this patent application is being filed on behalf of Summit Digital Solutions, Inc.

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