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(54) Title of the invention : ADAPTIVE QUANTUM-RESISTANT CRYPTOGRAPHY PROTOCOL WITH DYNAMIC THREAT RESPONSE FOR SECURING RESOURCE-CONSTRAINED IOT DEVICES

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(57) Abstract :  
 ADAPTIVE QUANTUM-RESISTANT CRYPTOGRAPHY PROTOCOL WITH DYNAMIC THREAT RESPONSE FOR SECURING RESOURCE-CONSTRAINED IOT DEVICES ABSTRACT The invention provides a system (100) to secure resource-constrained IoT devices using a quantum-resistant cryptographic module (102) that implements post-quantum algorithms to protect communications between IoT devices (112) and a central server (114). An adaptive threat assessment module (104) monitors real-time network traffic, device behavior, and external threats, adjusting cryptographic parameters accordingly. A dynamic protocol adjustment module (106) responds to changes in threat levels, network conditions, or device resources by modifying cryptographic protocols and key management schemes to maintain security without overloading the devices. Additionally, a key management module (110) securely generates and manages quantum-resistant cryptographic keys, dynamically adjusting them based on the current threat landscape, while a communication interface (108) ensures secure data transmission. FIG. 1

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