(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :22/07/2024

(21) Application No.202411055827 A
(43) Publication Date : 09/08/2024

(54) Title of the invention : ADAPTIVE SECURITY PROTOCOL FOR SMART HOME IOT DEVICES USING CLOUD-FOG ARCHITECTURES

(51) International classification :H04L0067120000, G06N0020000000, H04W0004700000, H04L0012280000, H04L0009080000
(86) International Application No :NA
Filing Date :NA
(87) International Publication No : NA
(61) Patent of Addition to Application Number :NA
Filing Date :NA
(62) Divisional to Application Number :NA
Filing Date :NA

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(57) Abstract :
The increasing adoption of Internet of Things (IoT) devices in smart home environments introduces significant security challenges due to their inherent vulnerabilities and limited computational resources. This paper proposes an adaptive security protocol that leverages a hybrid cloud-fog architecture to provide real-time threat detection and response. By utilizing the computational power of the cloud for centralized data processing and long-term analytics, combined with the low-latency advantages of fog computing for edge processing, the system ensures robust and efficient security measures. The proposed solution employs predictive analytics and machine learning techniques to continuously update and refine its security protocols, adapting to emerging threats in real-time. Evaluation results demonstrate the effectiveness of the adaptive security algorithm in enhancing the protection of smart home IoT devices, thereby ensuring a secure and resilient smart home environment.

No. of Pages : 18 No. of Claims : 4

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Government of India

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Application Details	
APPLICATION NUMBER	202411055827
APPLICATION TYPE	ORDINARY APPLICATION
DATE OF FILING	22/07/2024
APPLICANT NAME	1 . HARSH VARDHAN 2 . Pawan Kumar 3 . Er. Neha Sharma 4 . Narayan Jee 5 . ruchika 6 . Rahul Kumar Singh
TITLE OF INVENTION	ADAPTIVE SECURITY PROTOCOL FOR SMART HOME IOT DEVICES USING CLOUD-FOG ARCHITECTURES
FIELD OF INVENTION	COMPUTER SCIENCE
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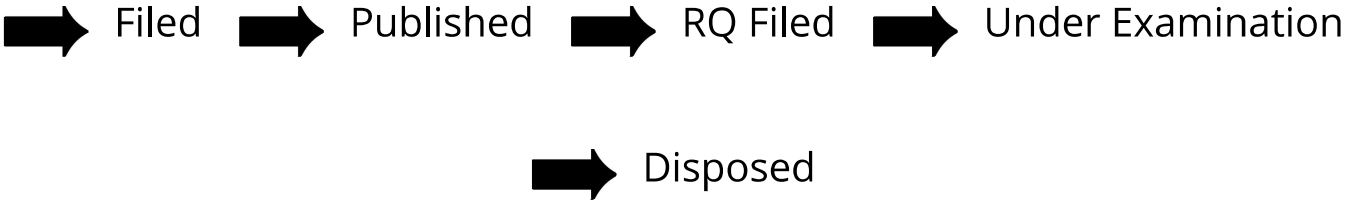
ADDITIONAL-EMAIL (As Per Record)	
E-MAIL (UPDATED Online)	
PRIORITY DATE	
REQUEST FOR EXAMINATION DATE	--
PUBLICATION DATE (U/S 11A)	09/08/2024

Application Status	
APPLICATION STATUS	Awaiting Request for Examination

View Documents



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