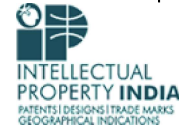


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## Patent Search

Invention Title	Automatic Rainfall Sensing and Protective Actuation System
Publication Number	01/2026
Publication Date	02/01/2026
Publication Type	INA
Application Number	202541126300
Application Filing Date	13/12/2025
Priority Number	
Priority Country	
Priority Date	
Field Of Invention	PHYSICS
Classification (IPC)	G01W 1/14, E06B 9/68, E05F 15/73, G08B 21/10, G08B 21/20

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### Abstract:

The invention discloses an automatic rainfall sensing and protection system designed to detect the onset of rain and autonomously deploy protective mechanisms to safe; weather-sensitive structures, equipment, and stored materials. The system incorporates a rainfall sensing unit coupled to a signal-conditioning circuit that filters and stabilizes moisture-detection signals. A microcontroller-based control unit processes the conditioned signal through an adaptive threshold and decision-logic module to confirm rain events. Upon detection, an actuator driver circuit activates a protective actuator that operates a retractable cover, shutter, flap, or equivalent protective mechanism. Optional alert modules and wireless communication interfaces provide user notifications and remote monitoring. The system offers reliable rain detection, rapid automatic response, reduced manual intervention, and enhanced protection across residential, commercial, agricultural, and industrial environments.

**Complete Specification**

## Description:FIELD OF THE INVENTION

[001] The present invention relates generally to automated environmental-responsive protection systems and, more particularly, to an Automatic Rainfall Sensing and Protection System configured to detect the onset of rain or moisture and autonomously initiate protective actions for safeguarding structures, goods, and equipment. The invention pertains to the fields of sensor-based automation, environmental monitoring, microcontroller-driven actuation, and intelligent protection mechanisms. It is applicable across residential, commercial, industrial, and storage environments, including homes, godowns, warehouses, manufacturing units, and automotive systems. The invention provides real-time rain detection and enables automated deployment of protective covers, shutters, or alerts, thereby mitigating rain-induced damage to weather-sensitive materials, improving safety, and enhancing operational efficiency in rain-prone regions.

## BACKGROUND OF THE INVENTION

[002] Rainfall presents a significant risk to a wide variety of outdoor and semi-exposed environments, including residential balconies, commercial storefronts, agricultural storage facilities, vehicle interiors, open machinery, and weather-sensitive electrical or electronic devices. Conventional protective measures typically rely on manual intervention, such as closing shutters, pulling covers, repositioning equipment, or moving goods to sheltered areas. These manual systems remain inherently limited because they depend on human presence, reaction time, and environmental awareness. In many instances—such as unexpected rainfall during night hours, during

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Page last updated on: 26/06/2019