README!:

This research introduces an innovative solution to mitigate fogging issues in helmets by incorporating a smart anti-fog system. The proposed system integrates a DHT11 humidity sensor to continuously monitor the environmental humidity levels. When the humidity surpasses a predetermined threshold, an onboard microcontroller triggers a relay, activating a heating mechanism. The heating element consists of either nichrome wires or transparent thin heaters strategically embedded within the helmet. These elements serve to elevate the temperature, preventing condensation and fog formation on the visor. Additionally, the traditional polycarbonate visor material can be substituted with polyethyleneimine, a material known for its anti-fogging properties, to further enhance visibility.

The adaptive nature of the system ensures real-time responsiveness to changing humidity conditions, optimizing energy consumption by activating the heating elements only when necessary. This anti-fog smart helmet offers a versatile solution applicable to various environments, such as motorcycle riding, industrial work, or outdoor activities, where maintaining clear visibility is critical for safety.

**methodology**

The development method for the intelligent anti-fog helmet begins with the discreet integration of the DHT11 humidity sensor, continuously monitoring humidity levels.

A responsive control unit, powered by a microcontroller, predicts fog formation based on real-time data. A flexible heating element, dynamically adjusted by the control unit, prevents fogging while optimizing energy use.

This calculation of threshold and heating based on it will happen only if the switch is on.

Optionally, a user interface allows manual control for customization.

HARDWARE REQUIREMENTS:

* DHT11 Sensor
* 5V Relay
* Helmet visor
* 12V power
* Nichrome wire
* Arduino