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Energy Saving in Classroom using IoT

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Abstract: *This proposed system focuses on saving energy by using smart technology to control appliances like lights and fans automatically. The system uses motion sensors to detect if people are in a room. If the room is empty, the system turns off the lights and fans, conserving energy that would otherwise be inefficiently used.*

Although this system is designed for classrooms, it can be used in many other places like offices, homes, and public spaces. In offices, it can manage meeting rooms and workspaces, only turning on lights and fans when needed. At home, it can reduce electricity use by controlling lights in common areas. Public places like libraries and airports can also use this system to save energy when areas aren't busy. It's easy to set up in existing buildings and can be scaled up for larger spaces.

The technology uses PIR sensor to detect motion, once the motion is detected then camera starts to capture the video, the video is subdivided into frames by using according to the number of lights and fans in that room. After detecting motion in particular, the frame microcontroller gives a signal to relay and lights and fans in that area will be turned on.

By saving energy based on whether people are present, this system helps lower electricity bills and reduces carbon footprint which protects the environment..

Keywords: IoT, Camera-Based Detection, Smart Classroom, Automation, Energy Conservation

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