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(57) Abstract :
Abstract Smart Lighting Systems for Energy Conservation The present invention provides a smart lighting system designed to conserve energy by automatically adjusting illumination based on ambient light conditions and human occupancy. The system includes a Light Dependent Resistor (L) sensor to monitor ambient light levels and a Passive Infrared (P) sensor to detect human motion. An Arduino UNO microcontroller (M) processes the input from these sensors to control a switching module (SM), which activates the lighting only when necessary. The system allows for customizable settings, enabling users to adjust the ambient light threshold and the duration for which the lights remain on after motion detection. This smart lighting system significantly reduces energy wastage, lowers electricity bills, and contributes to environmental sustainability. It is versatile and applicable in various indoor and outdoor environments, such as staircases, parking areas, building lobbies, halls, porches, decks, and backyards. Figure 1

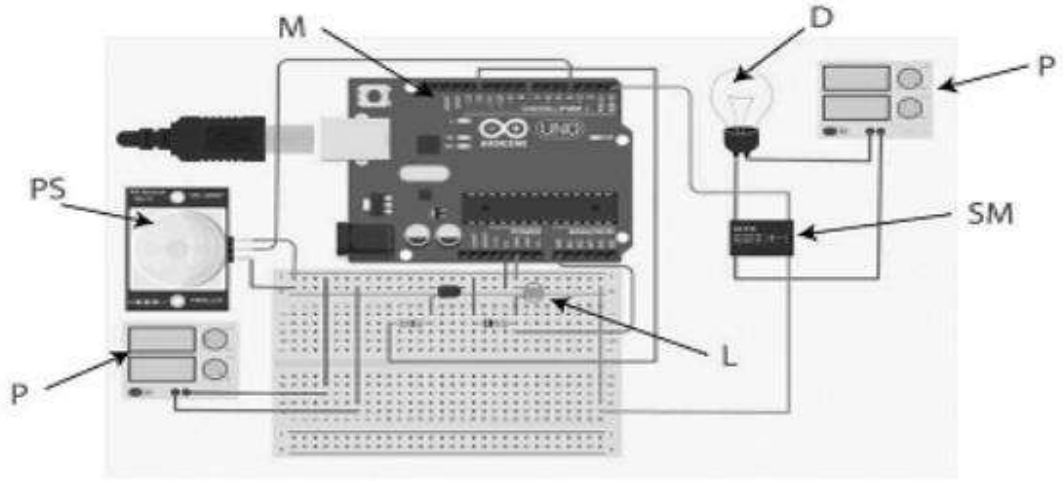

Figure 1 shows diagram of smart lighting system

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