

MOTION-ACTIVATED SMART WINDOW WITH AUTOMATIC CHILD LOCK AND ALARM SYSTEM

ABSTRACT

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Children are naturally curious, which may expose them to hazards near household windows. Accidental falls and unauthorized entry through windows remain important safety concerns. This study therefore aimed to develop a motion-activated smart window with an automatic child lock and alarm system to improve household safety, particularly for children. The study used a quantitative research design with a developmental framework. The prototype incorporated motion sensors, a microcontroller, an automatic locking mechanism, and an alarm system. After development, the prototype was evaluated by 15 respondents, including electrical engineers, security guards, and parents. A structured survey questionnaire was used to assess the system's functionality, reliability, safety, and ease of use. The responses were analyzed to determine the prototype's overall acceptability. Most respondents evaluated the system favorably. They agreed that the motion sensor functioned as intended and activated the alarm and automatic child lock when movement was detected near the window. Respondents also recognized the system's potential to reduce risks and improve household safety. Suggestions focused on improving the system's sensitivity and overall performance. The findings suggest that integrating motion detection with automatic locking and alarm features may support household safety. The developed smart-window prototype showed potential to help prevent accidents and improve security, particularly in homes with children.

RECOMMENDED CITATION

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