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Design and Development of a Novel Industrial Automation System Using Arduino Microcontroller

Industrial automation has become a cornerstone in advancing manufacturing and production systems globally. Industrial automation is significant because it transforms how industries operate, making them more efficient, flexible and competitive while improving safety and sustainability. It is a driving force behind modern manufacturing and production, enabling companies to innovate and adapt to the challenges of the 21st century. The major challenge in the industry is the availability of good and efficient industrial automation systems. The existing systems are not flexible because they are designed to perform specific tasks and are difficult to reconfigure the system for any changes. Another major challenge is that the conventional automation systems are more expensive. Hence there is a demand for cost effective and novel industrial automation systems across the world. Industrial automation system requires a controller which is flexible and feasible for its scalability. Arduino is one of the open source and cost effective platform to develop efficient control systems. This paper presents the design and development of a novel and cost effective industrial automation system using the Arduino microcontroller. The system is designed to control and monitor various industrial processes, providing an affordable and flexible solution for small to medium-sized enterprises. This paper is also helpful for the researchers in the field of industrial automation.
Keywords:
Actuators, Automation Systems, Industrial Automation, Microcontroller, Sensors.

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