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Automatic Bottle Filling and Capping System Using Arduino Uno

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Abstract: *This research presents the design and implementation of an advanced Automatic Bottle Filling and Capping System leveraging Arduino Uno, proximity sensors, a relay-controlled pump, and motor-driven conveyor belts. The proposed system is designed to streamline industrial bottle packaging by reducing human intervention while enhancing precision and efficiency. The integration of sensors and actuators ensures seamless control over liquid dispensing and capping processes. Experimental results confirm the system's reliability, scalability, and applicability to industrial automation. Future advancements, such as IOT integration and multi-liquid dispensing, are discussed to enhance its operational potential further.*

Keywords: Industrial Automation, Arduino Uno, Bottle Filling, Capping Mechanism, Proximity Sensors, Embedded Systems, Smart Manufacturing, Mechatronics, Robotics, Iot, Process Optimization, Plc Automation

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