

ABSTRACT

Suction pump is a vital medical device used to remove bodily fluids during surgery or other medical procedures. A common issue occurs when the fluid exceeds the container's capacity and reaches the pump motor, potentially causing damage. This is often due to the medical staff's limited ability to continuously monitor the suction device. This study aims to design an automatic suction system using a non-contact liquid sensor (XKC-Y25-V) and an Arduino Uno microcontroller. The sensor can detect fluid levels without direct contact, maintaining sterility and safety. When the fluid reaches a preset level, the sensor activates a relay that stops the pump automatically. Testing was carried out using two types of fluids with different viscosities: 66.00 cP and 1320.00 cP, to observe system performance under varying fluid thickness. The results showed that the system performed effectively, with sensor accuracy reaching 99.14% and an average error of just 0.86%. The system also remained stable when handling more viscous fluids. This innovation is expected to improve the efficiency and safety of suction devices in hospital settings.

Keywords: Suction pump, non-contact sensor, Arduino Uno, automation, relay