

Design and Development of IoT Based Low Cost Syringe Pump

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Abstract: *Dispensing various drugs in small volume at different flow rate with high accuracy and precision is required to the critical patients for a long period of time. Continuous monitoring for such a long period is very hectic job for a staff working in Medical Industry. In current scenario various syringe pumps are available in medical industries with high cost and with complex operating mechanism. To overcome aforesaid constraints and to avail it in medical industries as per increased demand in COVID-19 situations a low cost syringe pump is designed. It consist of NEMA 17 stepper motor and Arduino Uno that operates at different flow rates and display the flow rate and volume of drug to be delivered on LCD panel as well as on the website using internet of thing (IoT) platform.*

Keywords: Syringe pump, lead screw, NEMA17 stepper motor, Arduino Uno, LCD display, internet of thing (IoT), ESP8266

REFERENCES

- [1]. Harip, Mahrus Bawafie Mhd, Che Zawiyah Che Hasan, and Mohamad Adlee Nordin. "A Review of Internet of Things (IoT) for the Design of Smart Syringe Pump in Biomedical Application." Scientific Journal of Innovation and Social Sciences Research 2.1 (2022): 1-12.
- [2]. Anjani, Annisa Gallela, et al. "Application of IoT Using nodeMCU ESP8266 on the Syringe Pump Device to Increase Patient Safety." Indonesian Journal of Electronics, Electromedical Engineering, and Medical Informatics 4.1 (2022): 23-27.
- [3]. Akash, K., et al. "A single acting syringe pump based on Raspberry Pi-SOC." 2015 IEEE International Conference on Computational Intelligence and Computing Research (ICIC). IEEE, 2015.
- [4]. Anjani, Annisa Gallela, et al. "Application of IoT Using nodeMCU ESP8266 on the Syringe Pump Device to Increase Patient Safety." Indonesian Journal of Electronics, Electromedical Engineering, and Medical Informatics 4.1 (2022): 23-27.
- [5]. Dubey, Samiksha, et al. "IoT application for the design of digital drug administration interface." 2017 International Conference on Information, Communication, Instrumentation and Control (ICICIC). IEEE, 2017.
- [6]. Dubey, Samiksha, et al. "IoT application for the design of digital drug administration interface." 2017 International Conference on Information, Communication, Instrumentation and Control (ICICIC). IEEE, 2017.
- [7]. Rajasekwaran, S., et al. "IOT BASED LOW COST SYRINGE PUMP FOR TELEMEDICINE AND HEALTH CARE."
- [8]. Islam, Md Rakibul, Rushdi Zahid Rusho, and Sheikh Md Rabiul Islam. "Design and implementation of low cost smart syringe pump for telemedicine and healthcare." 2019 International Conference on Robotics, Electrical and Signal Processing Techniques (ICREST). IEEE, 2019.