DESIGNING AN ARDUINO NANO AS AN INTERFACE COMMUNICATION SYSTEM ON A SUGAR CONVEYOR MACHINE

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ABSTRACT

Since most of the systems in Indonesia are not yet equipped with adequate communication and monitoring technology, the sugar industry in Indonesia faces problems in terms of efficiency and accuracy when counting the number of sugar sacks moved through conveyor machines. There is a chance of errors being recorded manually. The aim of this study is to create and implement an Arduino Nano interface and communication system for sugar conveyor machines. Problem identification, system design, material procurement, assembly, and device testing are the steps of the experimental approach used. In this system, there is an Outseal Nano as a data counter, an Arduino Nano as a data processor, an HC-05 Bluetooth module for wireless communication, a MAX7219 LED MATRIX for local display, and an Android app for nearby monitoring created with MIT App Inventor. The test results show that this system can communicate data in real-time, display the counter and stock numbers accurately, and synchronize stock according to manual calculations. This way, the system helps operators automatically monitor the number of sugar sacks and reduces human errors.

Keywords: *Arduino Nano, communication system, HC-05 Bluetooth, MAX7219 LED Matrix, sugar bag monitoring*