ABSTRAK

RANCANG BANGUN PROTOTYPE SISTEM KONTROL AIR MELIMPAH BERBASIS PLC

(2025 : xv + 50 Halaman + Daftar Tabel + Daftar Gambar + Daftar Lampiran)

M. Al Aziz

062230310532

Jurusan Teknik Elektro

Program Studi Teknik Listrik

Politeknik Negeri Sriwijaya

Distribusi air yang tidak terkendali dapat menyebabkan pemborosan dan kerusakan lingkungan. Untuk mengatasi hal tersebut, dirancanglah Prototype Sistem Kontrol Air Melimpah Berbasis PLC yang menggabungkan sensor air, Programmable Logic Controller (PLC), dan tampilan Human-Machine Interface (HMI). Sistem ini bekerja secara otomatis dengan mendeteksi level air dan mengatur pompa berdasarkan kondisi yang terdeteksi. Hasil pengujian menunjukkan bahwa sistem otomatis mampu mengaktifkan dan menonaktifkan pompa sesuai level air (rendah, sedang, tinggi). Selain itu, mode manual berfungsi efektif sebagai cadangan saat sistem otomatis gagal, memungkinkan kontrol langsung melalui tombol tekan. Rancangan ini membantu pengguna memantau dan mengontrol distribusi air secara efisien, akurat, dan fleksibel.

Kata Kunci: Kontrol, Air, Level, Pompa, Prototipe

ABSTRACT

DESIGN AND DEVELOPMENT OF A PLC-BASED PROTOTYPE FOR OVERFLOW WATER CONTROL SYSTEM

(2025: xv + 50 pages + List of Tables + List of Figures + List of Appendices)

M. Al Aziz

062230310532

Department of Electrical Engineering

Electrical Engineering Study Program

State Polytechnic of Sriwijaya

Uncontrolled water distribution can lead to waste and environmental damage. To address this issue, a PLC-Based Overflow Water Control System Prototype was designed, combining water level sensors, a Programmable Logic Controller (PLC), and a Human-Machine Interface (HMI). The system operates automatically by detecting water levels and regulating pump activity accordingly. Testing results show that the automatic mode successfully controls the pump based on water levels (low, medium, high), while the manual mode functions as a reliable backup during system failures, allowing direct control via push buttons. This design enables users to monitor and manage water distribution efficiently, accurately, and flexibly.

Keywords: *Control, Water, Level, Pump, Prototype*