

DAFTAR ISI

| | |
|---|-----|
| HALAMAN JUDUL | ii |
| HALAMAN PENGESAHAN..... | iii |
| HALAMAN BEBAS PLAGIASI | iv |
| KATA PENGANTAR | v |
| DAFTAR ISI..... | vii |
| DAFTAR GAMBAR..... | xi |
| DAFTAR TABEL..... | x |
| INTISARI | xi |
| <i>ABSTRACT</i> | xii |
| BAB I PENDAHULUAN | 1 |
| 1.1 Latar Belakang | 1 |
| 1.2 Rumusan Masalah | 2 |
| 1.3 Batasan Masalah | 2 |
| 1.4 Tujuan Penelitian | 3 |
| 1.5 Manfaat | 3 |
| 1.6 Sistematika Penulisan | 3 |
| BAB II LANDASAN TEORI..... | 5 |
| 2.1 Tinjauan Pustaka | 5 |
| 2.2 Dasar Teori..... | 6 |
| 2.2.1 Sistem Pencampuran | 6 |
| 2.2.2 <i>Programmable Logic Control (PLC)</i> | 7 |
| 2.2.3 <i>Software TIA Portal V14</i> | 9 |
| 2.2.4 Pompa | 9 |
| 2.2.5 <i>Valve</i> | 10 |
| 2.2.6 <i>Heater</i> | 11 |
| 2.2.7 <i>Level Transmitter</i> | 12 |
| 2.2.8 <i>Temperature Transmitter</i> | 13 |
| BAB III METODOLOGI PENELITIAN | 14 |
| 3.1 Metode Penelitian | 14 |
| 3.2 Analisis Sistem..... | 14 |
| 3.3 Perancangan Sistem | 15 |
| 3.3.1 Diagram Blok Sistem Pencampuran Glukosa | 15 |
| 3.3.2 Perancangan <i>Piping & Instrumentation Diagram</i> | 17 |
| 3.3.3 <i>Flowchart</i> dan Algoritma Sistem Pencampuran Glukosa | 19 |
| 3.4 Perancangan Program pada PLC dan Tampilan pada HMI | 22 |
| 3.5 Pengujian Sistem..... | 25 |

| | |
|--|----|
| BAB IV PEMBAHASAN..... | 26 |
| 4.1 Hasil Perancangan Sistem Kerja Keseluruhan..... | 26 |
| 4.2 Mode Kontrol <i>Glucose Processing System</i> | 27 |
| 4.3 Analisis Tampilan <i>Human Machine Interface</i> (HMI)..... | 28 |
| 4.3.1 Tampilan <i>Screen Glucose Process</i> dan <i>Cleaning Process</i> | 29 |
| 4.3.2 Tampilan <i>Screen Pengaturan Glucose Compositition</i> | 29 |
| 4.3.3 Tampilan <i>Screen Phase Control</i> | 30 |
| 4.3.4 Tampilan <i>Status Button</i> | 31 |
| 4.3.5 Tampilan <i>Screen Parameter</i> | 32 |
| 4.3.6 Tampilan <i>Screen Scalling Object</i> | 33 |
| 4.3.7 Tampilan <i>Screen System Screen</i> | 34 |
| 4.3.8 Tampilan <i>Screen System Setting</i> | 35 |
| 4.3.9 Tampilan <i>Screen User Administration</i> | 35 |
| 4.3.10 Tampilan <i>Template Human Machine Interface</i> (HMI)..... | 36 |
| 4.4 Analisa Sistem Kerja Keseluruhan | 37 |
| 4.4.1 Pengujian dan Analisa Sistem Kerja <i>Glucose Preocess</i> | 37 |
| 4.4.2 Pengujian dan Analisa Sistem Kerja <i>Cleaning Process</i> | 45 |
| 4.4.3 Pengujian dan Analisa Manual Mode Komponen | 48 |
| BAB V PENUTUP | 50 |
| 5.1 Kesimpulan | 50 |
| 5.2 Saran | 50 |
| DAFTAR PUSTAKA | 51 |