

## DAFTAR ISI

|                                                                   |      |
|-------------------------------------------------------------------|------|
| LEMBAR PERNYATAAN .....                                           | ii   |
| LEMBAR PENGESAHAN.....                                            | iii  |
| ABSTRAK .....                                                     | iv   |
| ABSTRACT .....                                                    | v    |
| KATA PENGANTAR .....                                              | vi   |
| DAFTAR ISI .....                                                  | viii |
| DAFTAR GAMBAR .....                                               | x    |
| DAFTAR TABEL .....                                                | xi   |
| BAB I PENDAHULUAN .....                                           | 1    |
| 1.1.Latar Belakang .....                                          | 1    |
| 1.2.Rumusan Masalah.....                                          | 3    |
| 1.3 Tujuan Penelitian .....                                       | 3    |
| 1.4 Batasan Masalah .....                                         | 4    |
| 1.5 Metodelogi Penelitian .....                                   | 4    |
| 1.6 Sistematika Penulisan .....                                   | 5    |
| BAB II LANDASAN TEORI .....                                       | 6    |
| 2.1 Tinjauan Pustaka.....                                         | 6    |
| 2.2 Transformator .....                                           | 8    |
| 2.3 Jenis Trafo .....                                             | 9    |
| 2.4 Trafo Distribusi.....                                         | 10   |
| 2.5 Komponen-Komponen Utama Trafo.....                            | 10   |
| 2.6 Tap Charger .....                                             | 12   |
| 2.6.1 Teori Dasar Penyearah .....                                 | 14   |
| 2.6.2 Prinsip Kerja Tap charger .....                             | 15   |
| 2.6.3 Bagian-Bagian Tap Changer .....                             | 16   |
| 2.6.4 Pembagian Proses Kerja Tap Changer.....                     | 16   |
| 2.6.5 Macam-Macam Tap changer .....                               | 17   |
| 2.6.6 Kelebihan dan Kekurangan Tap Changer .....                  | 17   |
| 2.7 Arduino Uno .....                                             | 18   |
| 2.8 Sensor Current Transformer (CT Ring) .....                    | 19   |
| 2.8.1 Pengertian Sensor Trafo Arus (Current Transformer).....     | 14   |
| 2.8.2 Fungsi Trafo Arus.....                                      | 20   |
| 2.8.3 Komponen Trafo Arus .....                                   | 20   |
| 2.9 Buzzer .....                                                  | 21   |
| 2.10 LED (Light Emitting Dioda) .....                             | 22   |
| 2.10.1 Simbol dan Bentuk LED (Light Emitting Diode).....          | 23   |
| 2.10.2 Cara Kerja LED (Light Emitting Diode).....                 | 24   |
| 2.10.3 Cara Mengetahui Polaritas LED (Light Emitting Diode) ..... | 25   |
| III PERANCANGAN ALAT .....                                        | 26   |
| 3.1 Blok Diagram Sistem Deteksi .....                             | 26   |
| 3.2 Desain Sistem Deteksi .....                                   | 27   |
| 3.3 Rangkaian Koneksi Sensor ke Arduino .....                     | 28   |

|                                                                               |    |
|-------------------------------------------------------------------------------|----|
| 3.4 Rangkaian Power Supply .....                                              | 29 |
| 3.5 Perancangan Perangkat Lunak Flow Chart dan Penjelasan .....               | 30 |
| BAB IV HASIL DAN PEMBAHASAN .....                                             | 32 |
| 4.1 Hasil Perancangan .....                                                   | 32 |
| 4.2 Pengujian Fasa R terhadap waktu.....                                      | 33 |
| 4.3 Pengujian Fasa S terhadap waktu .....                                     | 34 |
| 4.4 Pengujian Fasa T terhadap waktu .....                                     | 36 |
| 4.5 Pengujian Fasa R, S dan T .....                                           | 37 |
| 4.6 Pengujian Sistem Warning .....                                            | 39 |
| 4.7 Pengujian Tingkat Akurasi.....                                            | 39 |
| 4.8 Prosedur Pengujian alat deteksi kontinuitas arus pada transformator ..... | 42 |
| BAB V PENUTUP .....                                                           | 44 |
| 5.1 Kesimpulan.....                                                           | 44 |
| 5.2 Saran .....                                                               | 44 |
| DAFTAR PUSTAKA .....                                                          | 45 |

