

## DAFTAR ISI

|                                  |             |
|----------------------------------|-------------|
| <b>LEMBAR PERSETUJUAN</b>        | <b>III</b>  |
| <b>LEMBAR PENGESAHAN PENGUJI</b> | <b>IV</b>   |
| <b>ABSTRAK</b>                   | <b>VI</b>   |
| <b>KATA PENGANTAR</b>            | <b>VIII</b> |
| <b>DAFTAR ISI</b>                | <b>XI</b>   |
| <b>DAFTAR GAMBAR</b>             | <b>XIV</b>  |
| <b>DAFTAR TABEL</b>              | <b>XV</b>   |
| <b>BAB 1</b>                     | <b>1</b>    |
| <b>PENDAHULUAN</b>               | <b>1</b>    |
| <b>1.1 Latar Belakang</b>        | <b>1</b>    |
| <b>1.2 Batasan Masalah</b>       | <b>6</b>    |
| <b>1.3 Rumusan Masalah</b>       | <b>6</b>    |
| <b>1.4 Tujuan</b>                | <b>7</b>    |
| <b>1.5 Manfaat</b>               | <b>7</b>    |
| <b>1.5.1 Manfaat Teoritis</b>    | <b>7</b>    |
| <b>1.5.2 Manfaat Praktis</b>     | <b>8</b>    |
| <b>BAB 2</b>                     | <b>9</b>    |
| <b>TINJAUAN PUSTAKA</b>          | <b>9</b>    |
| <b>2.1. Studi Literatur</b>      | <b>9</b>    |
| <b>2.2 Jantung</b>               | <b>10</b>   |
| <b>2.3 Suhu Tubuh</b>            | <b>12</b>   |
| <b>2.4 ESP-32</b>                | <b>14</b>   |
| <b>2.5 Sensor Max30102</b>       | <b>18</b>   |

|                                      |  |           |
|--------------------------------------|--|-----------|
| <b>2.6</b>                           | <b>Sensor Mlx90614</b>                       | <b>21</b> |
| <b>2.7</b>                           | <b>LCD 16x2</b>                              | <b>23</b> |
| <b>2.8</b>                           | <b>Arduino IDE</b>                           | <b>25</b> |
| <b>2.9</b>                           | <b>IoT</b>                                   | <b>27</b> |
| <b>2.10</b>                          | <b>Thingspeak</b>                            | <b>29</b> |
| <b>BAB 3</b>                         |  | <b>31</b> |
| <b>METODOLOGI PENELITIAN</b>         |  | <b>31</b> |
| <b>3.1</b>                           | <b>Rancangan Penelitian</b>                  | <b>31</b> |
| <b>3.2</b>                           | <b>Diagram Blok Sistem</b>                   | <b>32</b> |
| <b>3.3</b>                           | <b>Diagram Alir Proses/Program</b>           | <b>33</b> |
| <b>3.4</b>                           | <b>Diagram Mekanis Sistem</b>                | <b>35</b> |
| <b>3.5</b>                           | <b>Alat dan Bahan</b>                        | <b>36</b> |
| <b>3.6</b>                           | <b>Variabel Penelitian</b>                   | <b>36</b> |
| 3.6.1                                | Variabel bebas :                             | 36        |
| 3.6.2                                | Variabel Terikat                             | 36        |
| 3.6.3                                | Variabel Kontrol                             | 37        |
| <b>3.7.</b>                          | <b>Definisi Operasional</b>                  | <b>37</b> |
| <b>3.8.</b>                          | <b>Teknik Analisis Data</b>                  | <b>38</b> |
| <b>3.9.</b>                          | <b>Urutan Kegiatan</b>                       | <b>40</b> |
| <b>3.10.</b>                         | <b>Tempat dan Jadwal Kegiatan Penelitian</b> | <b>41</b> |
| 3.10.1                               | Tempat Penelitian                            | 41        |
| 3.10.2                               | Jadwal Penelitian                            | 42        |
| <b>BAB 4</b>                         |  | <b>43</b> |
| <b>HASIL PENGUKURAN DAN ANALISIS</b> |  | <b>43</b> |

|  |           |
|--|-----------|
| <b>4.1 Hasil Pendataan Pengukuran</b>      | <b>43</b> |
| 4.1.1 Pendataan pengukuran BPM             | 43        |
| 4.1.2 Pendataan pengukuran Temperature     | 44        |
| <b>4.2 Hasil Pengukuran dan Analisi</b>    | <b>45</b> |
| <b>4.3 Grafik Output</b>                   | <b>49</b> |
| 4.3.1 Hasil Grafik Output Sensor MAX30102  | 49        |
| 4.3.2 Hasil Serial Monitor Sensor MLX90614 | 49        |
| <b>BAB 5</b>                               | <b>51</b> |
| <b>PEMBAHASAN</b>                          | <b>51</b> |
| <b>5.1 Rangkaian</b>                       | <b>51</b> |
| 5.1.1 Rangkaian BPM                        | 51        |
| 5.1.2 Rangkaian Suhu tubuh                 | 52        |
| <b>5.2 Program</b>                         | <b>53</b> |
| 5.2.1 Program Sensor BPM                   | 53        |
| 5.2.2 Program Sensor Suhu Tubuh            | 56        |
| <b>BAB 6</b>                               | <b>62</b> |
| <b>PENUTUP</b>                             | <b>62</b> |
| <b>6.1. KESIMPULAN</b>                     | <b>62</b> |
| <b>6.2. SARAN</b>                          | <b>63</b> |
| <b>DAFTAR PUSTAKA</b>                      | <b>61</b> |