

## DAFTAR GAMBAR

|                     |                                                                         |    |
|---------------------|-------------------------------------------------------------------------|----|
| <b>Gambar 3. 1</b>  | <i>Diagram Animal Counting &amp; Recognition using Drone</i> .....      | 23 |
| <b>Gambar 3. 2</b>  | Contoh Deteksi Objek .....                                              | 24 |
| <b>Gambar 3. 3</b>  | Aristektur <i>YoloV8</i> .....                                          | 25 |
| <b>Gambar 3. 4</b>  | <i>Anchor Boxes</i> .....                                               | 26 |
| <b>Gambar 3. 5</b>  | <i>Prediction Bounding Box</i> .....                                    | 27 |
| <b>Gambar 3. 6</b>  | Tinjauan Kecerdasan Buatan dan Visi Komputer .....                      | 28 |
| <b>Gambar 3. 7</b>  | <i>Precision</i> .....                                                  | 29 |
| <b>Gambar 3. 8</b>  | <i>Recall</i> .....                                                     | 29 |
| <b>Gambar 3. 9</b>  | <i>Mean Average Precision</i> .....                                     | 30 |
| <b>Gambar 3. 10</b> | Ilustrasi Koneksi <i>Drone</i> Dengan Perangkat Keras.....              | 30 |
| <b>Gambar 3. 11</b> | Ilustrasi Fungsi Sistem .....                                           | 32 |
| <b>Gambar 3. 12</b> | <i>Diagram Blok Animal Counting &amp; Recognition Using Drone</i> ..... | 34 |
| <b>Gambar 3. 13</b> | <i>Flowchart</i> .....                                                  | 35 |
| <b>Gambar 3. 14</b> | <i>Use Case Diagram</i> .....                                           | 36 |
| <b>Gambar 3. 15</b> | <i>Sequence Diagram</i> Sistem .....                                    | 37 |
| <b>Gambar 3. 16</b> | <i>Spesifik Diagram Blok</i> .....                                      | 38 |
| <b>Gambar 3. 17</b> | <i>Activity Diagram</i> .....                                           | 39 |
| <b>Gambar 3. 18</b> | Pengujian <i>Algoritma</i> .....                                        | 43 |
| <b>Gambar 3. 19</b> | <i>Ganchart</i> Pengerjaan Tugas Akhir.....                             | 45 |
| <b>Gambar 4. 1</b>  | <i>Diagram Animal Counting &amp; Recognition using Drone</i> .....      | 47 |
| <b>Gambar 4. 2</b>  | Proses <i>Annotation</i> Gambar .....                                   | 48 |
| <b>Gambar 4. 3</b>  | Proses <i>Pre-Proceesing Data</i> .....                                 | 49 |
| <b>Gambar 4. 4</b>  | <i>Training Dataset</i> .....                                           | 50 |
| <b>Gambar 4. 5</b>  | <i>Flowchart System</i> .....                                           | 51 |
| <b>Gambar 4. 6</b>  | <i>Source Code Video Detection Object</i> .....                         | 52 |
| <b>Gambar 4. 7</b>  | <i>Source Code Video Detection Object</i> .....                         | 53 |
| <b>Gambar 4. 8</b>  | <i>Flowchart Web</i> .....                                              | 54 |
| <b>Gambar 4. 9</b>  | <i>Source Code Web</i> .....                                            | 55 |
| <b>Gambar 4. 10</b> | <i>Source Code Realtime Detection Object</i> .....                      | 56 |
| <b>Gambar 4. 11</b> | <i>Source Code Realtime Counting</i> .....                              | 57 |
| <b>Gambar 4. 12</b> | <i>Source Code Menampilkan Output</i> .....                             | 58 |
| <b>Gambar 4. 13</b> | Ilustrasi <i>PC Connect to Drone</i> .....                              | 58 |

|                     |                                                                          |    |
|---------------------|--------------------------------------------------------------------------|----|
| <b>Gambar 4. 14</b> | Perancangan Sistem.....                                                  | 60 |
| <b>Gambar 4. 15</b> | Tampilan <i>MonaServer</i> .....                                         | 60 |
| <b>Gambar 4. 16</b> | Menu Tampilan <i>OBS</i> .....                                           | 61 |
| <b>Gambar 4. 17</b> | <i>Output Website Local</i> .....                                        | 61 |
| <b>Gambar 4. 18</b> | <i>Output Website Realtime Local</i> .....                               | 62 |
| <b>Gambar 4. 19</b> | <i>Output Website Video Detection Local</i> .....                        | 62 |
| <b>Gambar 5. 1</b>  | Hasil <i>Training Local Rasio 60:40</i> .....                            | 66 |
| <b>Gambar 5. 2</b>  | Grafik <i>Precision, Recall, mAP50, mAP50-95 Kondisi 1</i> .....         | 66 |
| <b>Gambar 5. 3</b>  | Hasil <i>Training Local Rasio 70:30</i> .....                            | 67 |
| <b>Gambar 5. 4</b>  | Grafik <i>Precision, Recall, mAP50, mAP50-95 Kondisi 2</i> .....         | 68 |
| <b>Gambar 5. 5</b>  | Hasil <i>Training Local Rasio 80:20</i> .....                            | 69 |
| <b>Gambar 5. 6</b>  | Grafik <i>Precision, Recall, mAP50, mAP50-95 Kondisi 3</i> .....         | 70 |
| <b>Gambar 5. 7</b>  | Grafik Perbandingan Skenario <i>Dataset</i> .....                        | 71 |
| <b>Gambar 5. 8</b>  | Hasil <i>Training Local Learning Rate 0,01</i> .....                     | 72 |
| <b>Gambar 5. 9</b>  | <i>Precision, Recall, mAP50, dan mAP50-95 Learning Rate 0,01</i> .....   | 73 |
| <b>Gambar 5. 10</b> | Hasil <i>Training Local Learning Rate 0,001</i> .....                    | 74 |
| <b>Gambar 5. 11</b> | <i>Precision, Recall, mAP50, dan mAP50-95 learning rate 0,001</i> .....  | 75 |
| <b>Gambar 5. 12</b> | Hasil <i>Training Local Learning Rate 0,0001</i> .....                   | 76 |
| <b>Gambar 5. 13</b> | <i>Precision, Recall, mAP50, dan mAP50-95 learning rate 0,0001</i> ..... | 77 |
| <b>Gambar 5. 14</b> | Grafik Perbandingan <i>Learning Rate</i> .....                           | 78 |
| <b>Gambar 5. 15</b> | Hasil <i>Training Local Batch-size 4</i> .....                           | 79 |
| <b>Gambar 5. 16</b> | <i>Precision, Recall, mAP50, dan mAP50-95 Batch-size 4</i> .....         | 80 |
| <b>Gambar 5. 17</b> | Hasil <i>Training Local Batch-size 6</i> .....                           | 81 |
| <b>Gambar 5. 18</b> | <i>Precision, Recall, mAP50, dan mAP50-95 batch-size 6</i> .....         | 82 |
| <b>Gambar 5. 19</b> | Hasil <i>Training Local Batch-size 8</i> .....                           | 83 |
| <b>Gambar 5. 20</b> | <i>Precision, Recall, mAP50, dan mAP50-95 batch-size 8</i> .....         | 84 |
| <b>Gambar 5. 21</b> | Grafik Perbandingan <i>Batch-size</i> .....                              | 85 |
| <b>Gambar 5. 22</b> | Hasil <i>Training Local Epoch Ke-72</i> .....                            | 86 |
| <b>Gambar 5. 23</b> | <i>Precision, Recall, mAP50, dan mAP50-95 epoch 72</i> .....             | 87 |
| <b>Gambar 5. 24</b> | Hasil <i>Training Local Epoch Ke-100</i> .....                           | 88 |
| <b>Gambar 5. 25</b> | <i>Precision, Recall, mAP50, dan mAP50-95 epoch 100</i> .....            | 89 |
| <b>Gambar 5. 26</b> | Hasil <i>Training Epoch Ke-128</i> .....                                 | 90 |
| <b>Gambar 5. 27</b> | <i>Precision, Recall, mAP50, dan mAP50-95 epoch 128</i> .....            | 91 |
| <b>Gambar 5. 28</b> | Grafik Perbandingan Hasil <i>Training Epoch</i> .....                    | 92 |

|                                                                                                                                                     |     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| <b>Gambar 5. 29</b> Grafik <i>box loss, classification loss, deep face liveness loss, Precision, Recall, dan mean Average Precision (mAP)</i> ..... | 93  |
| <b>Gambar 5. 30</b> Skenario Pengujian <i>Drone</i> Ketika Posisi Diam .....                                                                        | 94  |
| <b>Gambar 5. 31</b> Skenario Pengujian <i>Drone</i> Ketika posisi Bergerak.....                                                                     | 94  |
| <b>Lampiran Gambar 1</b> Contoh mengidentifikasi Deteksi Hewan Ternak .....                                                                         | 130 |
| <b>Lampiran Gambar 2</b> Contoh mengidentifikasi Deteksi Hewan Ternak .....                                                                         | 131 |
| <b>Lampiran Gambar 3</b> Penyewaan <i>Drone</i> .....                                                                                               | 132 |
| <b>Lampiran Gambar 4</b> <i>Manual Book DJI Mavic Mini 1</i> .....                                                                                  | 133 |
| <b>Lampiran Gambar 5</b> <i>Aircraft diagram dan remote controller diagram DJI Mavic mini 1</i> .....                                               | 133 |
| <b>Lampiran Gambar 6</b> <i>Drone DJI Mavic Pro Platinum dan Mavic Mini 1</i> .....                                                                 | 134 |
| <b>Lampiran Gambar 7</b> Bukti Pengujian Hewan Rusa di Ranca upas.....                                                                              | 135 |
| <b>Lampiran Gambar 8</b> Bukti Pengujian Hewan Kambing Di Padepokna Kapalang Nya'ah <i>Green Campus Telkom University</i> .....                     | 135 |
| <b>Lampiran Gambar 9</b> Bukti Pengujian Hewan Sapi Di Peternakan Baitussalam Banjaran.....                                                         | 136 |
| <b>Lampiran Gambar 10</b> Pengujian Sapi dengan angle ketinggian 3 meter 45°.....                                                                   | 137 |
| <b>Lampiran Gambar 11</b> Pengujian Sapi Dengan Angle Ketinggian 2 Meter Tepat Di Belakang Sapi .....                                               | 137 |
| <b>Lampiran Gambar 12</b> Pengujian Kambing Dengan Angle Ketinggian 10 Meter 45°                                                                    | 138 |
| <b>Lampiran Gambar 13</b> Pengujian Kambing Dengan Angle Ketinggian 7 Meter 45° ..                                                                  | 138 |
| <b>Lampiran Gambar 14</b> Pengujian Rusa Ketinggian 10 Meter 45°.....                                                                               | 139 |
| <b>Lampiran Gambar 15</b> Pengujian Rusa Dengan Ketinggian 7 Meter 45° .....                                                                        | 139 |
| <b>Lampiran Gambar 16</b> Pengujian Rusa.....                                                                                                       | 140 |
| <b>Lampiran Gambar 17</b> Bimbingan dengan Bu Casie Setianingsih.....                                                                               | 140 |
| <b>Lampiran Gambar 18</b> Bimbingan Dengan Bu Anggunmeka Luhur Prasasti.....                                                                        | 141 |