Supplementary 1: Specification of Matrice-100

|  |  |
| --- | --- |
| Diagonal wheelbase | 650 mm |
| Max. Takeoff weight | 3400g |
| Hovering accuracy (P-mode with GPS) | Vertical:0.5m and Horizontal 2.5m |
| Max Speed | 22m/s (Atti-mode) and 17m/s (GPS mode) |
| Flight control system | N1 |
| Operating temperature | -10 to 40 deg Celcius |
| Operating frequency | 5.725~5.825 GHz |
| Transmission distance | CE 3.5km, FCC 5km |
| Video Output | USM, mini HDMI |

Supplementary 2: Performance Evaluation for 10 m, 20 m, 40 m and 50 m High Images (in conjunction with figure 16)

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Height of UAV (m)** | **Scale Factor** | **TP** | **FP** | **FN** | **Precision** | **Recall** | **F1 score** | **Computation Time****(secs)** | **Normalized Computation time** | **Absolute Difference between time and F1 score** |
| 10 | 1.01 | 10 | 0 | 0 | 1.00 | 1.00 | 1.00 | 1.03 | 1.00 | 0.00 |
| 1.05 | 10 | 0 | 0 | 1.00 | 1.00 | 1.00 | 0.18 | 0.13 | 0.87 |
| 1.1 | 10 | 0 | 0 | 1.00 | 1.00 | 1.00 | 0.10 | 0.05 | 0.95 |
| 1.15 | 10 | 0 | 1 | 1.00 | 0.91 | 0.95 | 0.05 | 0.00 | 0.95 |
| **1.2** | **10** | **0** | **1** | **1.00** | **0.91** | **0.95** | **0.05** | **0.00** | **0.95** |
| 1.25 | 10 | 0 | 1 | 1.00 | 0.91 | 0.95 | 0.05 | 0.00 | 0.95 |
| 20 | 1.01 | 14 | 3 | 0 | 0.82 | 1.00 | 0.90 | 1.63 | 1.00 | 0.10 |
| 1.05 | 13 | 2 | 1 | 0.87 | 0.93 | 0.90 | 0.26 | 0.13 | 0.77 |
| 1.1 | 13 | 3 | 1 | 0.81 | 0.93 | 0.87 | 0.15 | 0.06 | 0.81 |
| 1.15 | 13 | 2 | 1 | 0.87 | 0.93 | 0.90 | 0.06 | 0.00 | 0.89 |
| **1.2** | **13** | **1** | **1** | **0.93** | **0.93** | **0.93** | **0.05** | **0.00** | **0.93** |
| 1.25 | 13 | 1 | 1 | 0.93 | 0.93 | 0.93 | 0.05 | 0.00 | 0.93 |
| 40 | 1.01 | 24 | 13 | 2 | 0.65 | 0.92 | 0.76 | 0.94 | 1.00 | 0.24 |
| 1.05 | 24 | 2 | 2 | 0.92 | 0.92 | 0.92 | 0.24 | 0.22 | 0.70 |
| **1.1** | **23** | **3** | **2** | **0.88** | **0.92** | **0.90** | **0.14** | **0.11** | **0.79** |
| 1.15 | 9 | 1 | 17 | 0.90 | 0.35 | 0.50 | 0.08 | 0.04 | 0.46 |
| 1.2 | 4 | 0 | 22 | 1.00 | 0.15 | 0.27 | 0.12 | 0.09 | 0.18 |
| 1.25 | 1 | 0 | 25 | 1.00 | 0.04 | 0.07 | 0.04 | 0.00 | 0.07 |
| 50 | 1.01 | 29 | 1 | 2 | 0.97 | 0.94 | 0.95 | 1.26 | 1.00 | 0.05 |
| 1.05 | 27 | 9 | 5 | 0.75 | 0.84 | 0.79 | 0.30 | 0.21 | 0.58 |
| **1.1** | **24** | **5** | **7** | **0.83** | **0.77** | **0.80** | **0.15** | **0.09** | **0.71** |
| 1.15 | 18 | 4 | 11 | 0.82 | 0.62 | 0.71 | 0.11 | 0.06 | 0.65 |
| 1.2 | 21 | 6 | 9 | 0.78 | 0.70 | 0.74 | 0.10 | 0.05 | 0.69 |
| 1.25 | 1 | 0 | 30 | 1.00 | 0.03 | 0.06 | 0.04 | 0.00 | 0.06 |