***Results***

**Computer Info**

Main Computer:

* Ubuntu …

Qualisys Laptop:

* Windows 10

**Static – MH370 Map:**

*3 Crazyflies:*

Date: 5/20/20

Time: 18:51

Mission Status: Completed Successfully!

Final Mission Time (including charging): 217.845 seconds

Algorithm Solution Time: 113.613 seconds

Space: 3.5 x 4.5 (0.2 res)

|  |  |  |  |
| --- | --- | --- | --- |
| **Crazyflie \ Cycle** | **1** | **2** | **Final Land** |
| ***CF1 Flight*** | 35.304 / -13.304% | 32.005 / -11.587% |  |
| ***CF1 Charge*** | 60.060 / 7.296% | 60.064 / 4.721% |  |
| ***CF1 Land*** | 8.903 | 6.803 | 1.200 |
| ***CF2 Flight*** | 48.708 / -15.879 (readjust) | 31.304 / -3.004% |  |
| ***CF2 Charge*** | 60.064 / 6.866% | 60.064 / 9.012% |  |
| ***CF2 Land*** | 6.202 | 6.502 | 1.000 |
| ***CF4 Flight*** | 45.008 / - (readjust) | 39.307 / - (readjust) |  |
| ***CF4 Charge*** | 60.061 / - | 60.060 / - |  |
| ***CF4 Land*** | 6.503 | 5.901 | 1.00 |

*6 Crazyflies:*

Date: 5/21/20

Time: 10:51

Mission Status: Failure (2 lost tracking)

Final Mission Time (including charging): 104.778 seconds

Missed 36 out of 204: 17.647%

*5 Crazyflies:*

Date: 5/25/20

Time: 22:56

Mission Status: Completed Successfully!

Final Mission Time (including charging): 120.082 seconds

Algorithm Solution Time: 131.481 seconds

Space: 3.5 x 4 (0.2 res)

|  |  |  |
| --- | --- | --- |
| **Crazyflie \ Cycle** | **1** | **Final Land** |
| ***CF1 Flight*** | 50.310 / -43.345% |  |
| ***CF1 Charge*** | 60.061 / 45.919% |  |
| ***CF1 Land*** | 3.700 | 2.900 |
| ***CF2 Flight*** | 32.402 / -6.866% |  |
| ***CF2 Charge*** | 60.064 / 10.729% |  |
| ***CF2 Land*** | 7.902 | 1.200 |
| ***CF4 Flight*** | 42.206 / -5.150% (readjust) |  |
| ***CF4 Charge*** | 60.060 / 8.583% |  |
| ***CF4 Land*** | 6.601 | 2.000 |
| **CF7 Flight** | 32.104 / -4.721% |  |
| **CF7 Charge** | 60.064 / 10.300% |  |
| **CF7 Land** | 9.003 | 1.800 |
| **CF10 Flight** | 39.703 / -6.866% |  |
| **CF10 Charge** | 60.064 / 9.012% |  |
| **CF10 Land** | 12.102 | 2.300 |

**Static – Disjoint Map:**

*3 Crazyflies:*

Date: 5/21/20

Time: 14:16

Mission Status: Completed Successfully!

Final Mission Time (including charging): 202.242 seconds

Algorithm Solution Time: 121.015 seconds

Space: 3 x 3.5 (0.15 res)

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| --- | --- | --- | --- |
| **Crazyflie \ Cycle** | **1** | **2** | **Final Land** |
| ***CF1 Flight*** | 33.501 / -9.441 | 31.204 / -2.575 |  |
| ***CF1 Charge*** | 60.064 / 6.866 | 60.064 / 8.583% |  |
| ***CF1 Land*** | 8.501 | 6.902 | 0.900 |
| ***CF4 Flight*** | 32.603 / -3.433 | 30.904 / -19.312% |  |
| ***CF4 Charge*** | 60.064 / 9.441 | 60.064 / 7.296% |  |
| ***CF4 Land*** | 8.602 | 7.202 | 1.000 |
| ***CF6 Flight*** | 31.002 / -9.871 | 29.404 / -9.441% |  |
| ***CF6 Charge*** | 60.060 / 6.008 | 60.062 / 6.008% |  |
| ***CF6 Land*** | 8.101 | 6.402 | 0.900 |

**Mobile – MH370 Map:**

*3 Crazyflies:*

Date: 5/21/20

Time: 16:51

Mission Status: Failure (1 lost tracking)

Final Mission Time (including charging): 263.322 seconds

Missed 13 out of 171: 7.602%

*3 Crazyflies:*

Date: 5/21/20

Time: 19:24

Mission Status: Completed Successfully!

Final Mission Time (including charging): 190.146 seconds

Algorithm Solution Time: 197.794 seconds

Space: 3.5 x 4 (0.2 res)

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| --- | --- | --- | --- |
| **Crazyflie \ Cycle** | **1** | **2** | **Final Land** |
| ***CF1 Flight*** | 24.102 / -2.146% | 26.205 / -16.308% |  |
| ***CF1 Charge*** | 60.062 / 9.012% | 60.061 / 5.579% |  |
| ***CF1 Land*** | 8.102 | 7.203 | 1.700 |
| ***CF4 Flight*** | 26.202 / -11.158% | 25.203 / -9.441% |  |
| ***CF4 Charge*** | 60.061 / 6.437% | 60.062 / 6.008% |  |
| ***CF4 Land*** | 9.002 | 7.201 | 1.300 |
| ***CF6 Flight*** | 24.002 / - | 31.309 / - (readjust) |  |
| ***CF6 Charge*** | 60.060 / - | 60.063 / - |  |
| ***CF6 Land*** | 8.101 | 5.903 | 1.200 |

*5 Crazyflies:*

Date: 5/24/20

Time: 20:21

Mission Status: Completed Successfully!

Final Mission Time (including charging): 109.849 seconds

Algorithm Solution Time: 269.087 seconds

Space: 3.5 x 4 (0.2 res)

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| --- | --- | --- |
| **Crazyflie \ Cycle** | **1** | **Final Land** |
| ***CF1 Flight*** | 24.803 / -9.012% |  |
| ***CF1 Charge*** | 60.060 / 6.437% |  |
| ***CF1 Land*** | 9.003 | 2.300 |
| ***CF2 Flight*** | 26.804 / -24.891% |  |
| ***CF2 Charge*** | 60.062 / 22.316% |  |
| ***CF2 Land*** | 8.903 | 2.200 |
| ***CF3 Flight*** | 27.104 / -10.230% |  |
| ***CF3 Charge*** | 60.060 / 6.008% |  |
| ***CF3 Land*** | 8.903 | 2.600 |
| **CF7 Flight** | 35.508 / -27.037% (readjust) |  |
| **CF7 Charge** | 60.060 / 24.462% |  |
| **CF7 Land** | 5.702 | 2.100 |
| **CF10 Flight** | 26.603 / -8.154% |  |
| **CF10 Charge** | 60.064 / 6.008% |  |
| **CF10 Land** | 8.303 | 2.300 |

*8 Crazyflies:*

Date: 5/27/20

Time: 19:31

Mission Status: Completed Successfully!

Final Mission Time (including charging): 109.110 seconds

Algorithm Solution Time: 289.936 seconds

Space: 3.5 x 4.0 (0.2 res)

\*Only 6 chargers

|  |  |  |
| --- | --- | --- |
| **Crazyflie \ Cycle** | **1** | **Final Land** |
| ***CF1 Flight*** | 23.903 / -62.656% |  |
| ***CF1 Charge*** | 60.061 / 58.794% |  |
| ***CF1 Land*** | 8.702 | 2.600 |
| ***CF2 Flight*** | 41.510 / -40.340% (readjust) |  |
| ***CF2 Charge*** | 60.064 / 36.907% |  |
| ***CF2 Land*** | 2.900 | 60.064 |
| ***CF4 Flight*** | 25.504 / -7.725% |  |
| ***CF4 Charge*** | 60.060 / 6.008% |  |
| ***CF4 Land*** | 8.803 | 3.100 |
| **CF5 Flight** | - |  |
| **CF5 Charge** | - |  |
| **CF5 Land** | - | 4.000 |
| **CF6 Flight** | 22.604 / - |  |
| **CF6 Charge** | 60.064 / - |  |
| **CF6 Land** | 8.403 | 2.800 |
| ***CF7 Flight*** | - |  |
| ***CF7 Charge*** | - |  |
| ***CF7 Land*** | - | 3.800 |
| **CF10 Flight** | 41.911 / - (readjust) |  |
| **CF10 Charge** | 60.060 / - |  |
| **CF10 Land** | 3.500 | 60.060 |
| **CF11 Flight** | 24.104 / -7.725% |  |
| **CF11 Charge** | 60.060 / 6.866% |  |
| **CF11 Land** | 8.502 | 2.600 |

**Mobile – Disjoint Map:**

*3 Crazyflies:*

Date: 5/21/20

Time: 23:20

Mission Status: Failed (1 lost tracking)

Final Mission Time: 255.006 seconds

Missed 13 out of 120: 10.833%

*3 Crazyflies:*

Date: 5/21/20

Time: 0:09

Mission Status: Completed Successfully!

Final Mission Time (including charging): 255.509 seconds

Algorithm Solution Time: 194.462 seconds

Space: 3 x 3.5 (0.2 res)

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| --- | --- | --- | --- | --- |
| **Crazyflie \ Cycle** | **1** | **2** | **3** | **Final Land** |
| ***CF1 Flight*** | 24.402 / -6.437% | 35.208 / -7.725 (readjust) |  |  |
| ***CF1 Charge*** | 60.063 / 3.862% | 60.064 / 5.150% |  |  |
| ***CF1 Land*** | 8.202 | 6.802 |  | 1.100 |
| ***CF4 Flight*** | 23.802 / -8.583% | 22.105 / -7.725% | 23.603 / -7.725% |  |
| ***CF4 Charge*** | 60.060 / 6.008% | 60.064 / 6.437% | 60.061 / 6.008% |  |
| ***CF4 Land*** | 9.301 | 7.503 | 7.800 | 1.800 |
| ***CF6 Flight*** | 24.702 / -6.008% | 24.006 / - |  |  |
| ***CF6 Charge*** | 60.060 / 4.292% | 60.064 / - |  |  |
| ***CF6 Land*** | 8.301 | 7.203 |  | 1.500 |

**Mobile Replan – MH370:**

*3 Crazyflies:*

Date: 5/22/20

Time: 15:20

Mission Status: Completed Successfully!

Final Mission Time (including charging): 398.874 seconds

Algorithm Solution Time: 198.219 seconds

Replan Algorithm Solution Time: 120.401 seconds

Space: 3.5 x 4.0 (0.2 res)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Crazyflie \ Cycle** | **1** | **2** | **3** | **4** | **Final Land** |
| ***CF1 Flight*** | 22.332 / -12.016% | 24.901 / -3.004% | 23.005 / -9.441% | 22.605 / -15.879% |  |
| ***CF1 Charge*** | 60 / - | 60.064 / 9.871% | 60.063 / 7.725% | 60.063 / 4.292% |  |
| ***CF1 Land*** | 8.303 | 7.101 | 6.302 | 7.002 | 0.900 |
| ***CF3 Flight*** | Failed | - | - | - |  |
| ***CF3 Charge*** | - | - | - | - |  |
| ***CF3 Land*** | - | - | - | - |  |
| ***CF6 Flight*** | 25.029 / -11.158% | 23.901 / -9.871% | 24.304 / -8.583% | 24.605 / -8.583% |  |
| ***CF6 Charge*** | 60 / - | 60.060 / 6.437% | 60.060 / 5.150% | 60.063 / 6.008% |  |
| ***CF6 Land*** | 8.203 | 7.100 | 7.101 | 7.503 | 0.900 |

*5 Crazyflies:*

Date: 5/25/20

Time: 19:44

Mission Status: Completed Successfully!

Final Mission Time (including charging): 261.767 seconds

Algorithm Solution Time: 272.649 seconds

Replan Algorithm Solution Time: 139.426 seconds

Space: 3.5 x 4.0 (0.2 res)

|  |  |  |  |
| --- | --- | --- | --- |
| **Crazyflie \ Cycle** | **1** | **2** | **Final Land** |
| ***CF1 Flight*** | 26.261 / -10.230% | 18.302 / -48.924% |  |
| ***CF1 Charge*** | 60 / - | 60.063 / - |  |
| ***CF1 Land*** | 9.261 | 0.901 (missed charging pad) | 2.000 |
| ***CF2 Flight*** | 21.402 / -42.486% | - |  |
| ***CF2 Charge*** | - | - |  |
| ***CF2 Land*** | Failed | - |  |
| ***CF4 Flight*** | 26.461 / -10.230% | 25.203 / -9.012% |  |
| ***CF4 Charge*** | 60 / - | 60.061 / 6.008% |  |
| ***CF4 Land*** | 9.160 | 8.202 | 2.400 |
| **CF7 Flight** | 22.904 / -10.729% | 23.904 / -8.583% |  |
| **CF7 Charge** | 60 / - | 60.060 / 5.579% |  |
| **CF7 Land** | 8.103 | 8.004 | 1.900 |
| **CF10 Flight** | 22.801 / -9.441% | 25.401 / -21.887% |  |
| **CF10 Charge** | 60 / - | 60.060 / 18.024% |  |
| **CF10 Land** | 8.601 | 7.500 | 2.300 |

*5 Crazyflies – 2+ failures:*

Date: 6/4/20

Time: 16:33

Mission Status: Completed Successfully!

Final Mission Time (including charging): 529.348 seconds

Algorithm Solution Time: 232.283 seconds

Replan Algorithm Solution Time: 117.625 / 110.450 seconds

2nd Replan Algorithm Solution Time: 92.865 seconds

Space: 3.5 x 4.0 (0.2 res)

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| --- | --- | --- | --- | --- | --- |
| **Crazyflie \ Cycle** | **1** | **2** | **3** | 4 | **Final Land** |
| ***CF1 Flight*** | Failed | - | - | - |  |
| ***CF1 Charge*** | - | - | - | - |  |
| ***CF1 Land*** | - | - | - | - |  |
| ***CF2 Flight*** | 24.043 / -3.433% | 19.502 / -15.450% | Failed | - |  |
| ***CF2 Charge*** | 60+ / - | 60.059 / 4.721% | - | - |  |
| ***CF2 Land*** | 8.100 | 7.401 | - | - |  |
| ***CF4 Flight*** | Failed | - | - | - |  |
| ***CF4 Charge*** | - | - | - | - |  |
| ***CF4 Land*** | - | - | - | - |  |
| **CF5 Flight** | 24.547 / -9.441% | 22.602 / -51.928% | Failed | - |  |
| **CF5 Charge** | 60+ / - | 60.059 / 48.924% | - | - |  |
| **CF5 Land** | 7.901 | 7.201 | - | - |  |
| **CF6 Flight** | 30.950 / -9.012% (readjust) | 23.801 / -8.583% | - / - | 20.704 / -21.887% |  |
| **CF6 Charge** | 60+ / - | 60.060 / 6.437% | 60+ / - | 60.065 / 20.170% |  |
| **CF6 Land** | 5.803 | 7.201 | 1.1 (ground) | 8.103 | 0.9 |

*8 Crazyflies:*

Date:

Time:

Mission Status: Completed Successfully!

Final Mission Time (including charging):

Algorithm Solution Time: 304.517 seconds

Space: 3.5 x 4.0 (0.175 res)

**Mobile Replan – Disjoint:**

*3 Crazyflies:*

Date: 5/24/20

Time: 14:23

Mission Status: Completed Successfully!

Final Mission Time (including charging): 307.315 seconds

Algorithm Solution Time: 226.271 seconds

Replan Algorithm Solution Time: 101.801 seconds

Space: 3 x 3.5 (0.2 res)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Crazyflie \ Cycle** | **1** | **2** | **3** | **Final Land** |
| ***CF1 Flight*** | 23.103 / -10.729% | 24.105 / -11.158% | 26.203 / -11.587% |  |
| ***CF1 Charge*** | 60.064 / 6.866% | 60+ / - | 60.064 / 6.008% |  |
| ***CF1 Land*** | 8.202 | 8.002 | 7.302 | 1.100 |
| ***CF6 Flight*** | 24.303 / -9.441% | 24.004 / -11.158% | 41.209 / -41.199% (2 readjusts) |  |
| ***CF6 Charge*** | 60.063 / 5.150% | 60+ / - | 60.062 / 34.761% |  |
| ***CF6 Land*** | 8.103 | 7.302 | 4.200 | 1.000 |
| ***CF10 Flight*** | 24.803 / -8.583% | Failed | - |  |
| ***CF10 Charge*** | 60.064 / 4.292% | - | - |  |
| ***CF10 Land*** | 8.103 | - | - |  |