# Appendix D: Design Completion Form – Team Ganges

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| Component of system/Milestone | Supervisor | Time/Date | Comments (all/part/none working; protoboard/constructed) | | | |
| UAV takes off for a short time with stable flight |  |  | 10 seconds of stable flight @ 20cm | | | |
| UAV sustains stable flight and lands in a small target area |  |  | Within a 40 x 40cm area | | | |
| Complete system is integrated and can lift a cargo of \_\_\_\_ g |  |  | Mass without cargo \_\_\_\_\_\_ g, Dimensions without cargo\_\_\_\_\_ cm | | | |
| Power management of complete UAV |  |  | \_\_\_\_\_ mA , at \_\_\_\_\_ V = \_\_\_\_\_\_ mW. Batteries should last for \_\_\_\_\_ hrs. | | | |
| Read angles from gyro over I2C |  |  | 100 samples/s | | | |
| Correct PWM outputs from Arduino over four channels |  |  | 10% max duty cycle, 50Hz, Check with scope | | | |
| PID testing with servo and gyro input |  |  | Stable for -70 -> 70 deg | | | |
| Transmit instruction packets from Il Matto to Arduino |  |  | @ 115200 baud 100 packets per second | | | |
| Calibrate the ESCs so they power up consistently |  |  | Verify using scope | | | |
| ESCs interfaced with Arduino to independently control motors |  |  |  | | | |
| Transmitting data from Il Matto using RFM12b-S2 |  |  |  | | | |
| Receive transmission on Il Matto from RFM12b-S2 |  |  | ~100 packets per second | | | |
| Interface one Il Matto with 2 transceivers for bi-directional RF comms |  |  |  | | | |
| Achieve two-way communications between two Il Mattos |  |  | On board receive at 100 packets/s with transmission back at 1 packet/s | | | |
| 4 10-Bit ADC Potentiometer readings from the controller to the Il Matto. |  |  |  | | | |
| UI from PC sends K values to the ground comms Il Matto |  |  |  | | | |
| PID k values transferred from the PC to the drone via the RF comms |  |  | PC -> (UART) -> Base Il Matto -> (SPI) -> Radio link -> (SPI) -> Drone Il Matto | | | |
| Milestones finalised by supervisor: | ……………………………………………… Signed ………………………………………………………… Date | | |  |  |
| Prototype hardware handed over to: | ……………………………………………… Signed ………………………………………………………… Date | | |  |  |
| Other items returned to Lab support hatch and checked by: | ……………………………………………… Signed ………………………………………………………… Date | | |  |  |

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| Receive Log Data from Arduino on Il Matto |  |  | 1 log/s | | | |
| Write data from Il Matto to SD Card/ Read Data from SD card in computer |  |  |  | | | |
| Collect gyro data and Battery level and write to SD card via Il Matto |  |  |  | | | |
| Read battery voltage into Il Matto |  |  | 11.1V -> 3.3V using Potential Divider, into 10-bit ADC channel | | | |
| Actuate Servo using PWM signal |  |  | 50Hz with 1-2ms pulse | | | |
| Servo controlled by ground control switches |  |  | Toggle between two positions | | | |
| Verify operation of Power Distribution Board |  |  | 11.1V to each ESC, required power to all on-board microcontrollers | | | |
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