Appendix D: Design Completion Form – Team Ganges

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	gvm	4pm 6th	Mass without cargo ______ g, Dimensions without cargo_____ cm cyclic frame assembled
Power management of complete UAV	RM	4pm 13th	_____ mA , at _____ V = ______ mW. Batteries should last for _____ hrs. it is powered
Read angles from gyro over I2C	RM	3pm 6th	100 samples/s ✓ arduino reading from sensor on breadboard.
Correct PWM outputs from Arduino over four channels	GVM	3pm 6th	10% max duty cycle, 50Hz, Check with scope 50Hz on + PWM channels from arduino seen on scope, 1:5/2:10/3/4 5-10%
PID testing with servo and gyro input	RM	3pm 6th	Stable for -70 -> 70 deg breadboard, arduino, sensor – PID maintains level tilt
Transmit instruction packets from Il Matto to Arduino	gvm	6th 16:30	@ 115200 baud 100 packets per second Il Matto sends packet containing throttle, pitch, yaw & roll to arduino, which loops. Shown on scope.
Calibrate the ESCs so they power up consistently	[illegible]	10:45 08-03-17	Verify using scope
ESCs interfaced with Arduino to independently control motors	[illegible]	10:45 08-03-17	
Transmitting data from Il Matto using RFM12b-S2	RM	3pm 6th	see below
Receive transmission on Il Matto from RFM12b-S2	RM	3pm 6th	~100 packets per second Il Matto → RFM → RFM → Il Matto → Hyperterminal
Interface one Il Matto with 2 transceivers for bi-directional RF comms	RM	4pm 13th	Bidirectional comms UAV ⟷ controller
Achieve two-way communications between two Il Mattos	RM	2pm 13th	On board receive at 100 packets/s with transmission back at 1 packet/s two Il Mattos connected to hyperterminal
4 10-Bit ADC Potentiometer readings from the controller to the Il Matto.	gvm gvm	4pm 6th 16:30 6th	2 pot joysticks → Il Matto → serial terminal. some crosstalk between the two channels (significant). Crosstalk fixed.
UI from PC sends K values to the ground comms Il Matto	gvm	11:00 10th	Ground comms switchable between txing pot flight controls, or PID adjust through terminal
PID k values transferred from the PC to the drone via the RF comms	gvm	11:00 10th	drone receives controller pot data or PID updates via RFM12. PC -> (UART) -> Base Il Matto -> (SPI) -> Radio link -> (SPI) -> Drone Il Matto

Milestones finalised by supervisor: ....SEE OVER...... Signed .... Date

Prototype hardware handed over to:

.... Signed .... Date

Other items returned to Lab support hatch and checked by: .... Signed .... Date