

STUDENT FEEDBACK FORM: JAMIL R HAIDAR

Generic Assessment Criteria	Mark s availa ble	Mar ks awar ded
1. Engagement with Literature Skills: Show you have researched and used reliable sources to support your ideas. Include key theories and up-to-date information about mechanical dynamics, control systems, and software like MATLAB Simulink with proper referencing (Havard style).		
Feedback: You use a relevant mix of sources, including journal papers, a textbook, and a dissertation, and you make clear links between the literature and your design choices. In particular, your discussion of habituation, species-agnostic design, and staged response strategies shows a good attempt to connect research evidence to engineering decisions. You also appropriately reference control theory (Korn & Korn) and relate it to your modelling approach, which strengthens the theoretical grounding of your work. Feedforward: Although the reference base is largely academic, the inclusion of a dissertation needs clearer justification within the main body of the report. It should be explicitly cited where its findings are used, and its relevance to your design decisions should be made clear. Harvard referencing also needs further tightening. There are inconsistencies in formatting, punctuation, and alignment between in-text citations and the reference list. For example, the discrepancy between “(Niloofar et al., 2024)” in the text and “Niloofar et al. (2025)” in the reference list must be resolved to ensure consistency and academic accuracy. In addition, ensure that all listed references are actively used in the report. For instance, sources such as Abed et al. (2025) should be cited in the relevant sections where their findings support your argument. If a source is not used in the main text, it should be removed from the reference list to maintain academic integrity and coherence.	15	10
2. Knowledge and Understanding Skills: Demonstrate that you understand the main concepts and principles behind your project, explaining how they relate to designing the monkey deterrent system and its challenges.		
Feedback: You demonstrate a sound understanding of the system-level objective: an autonomous, low-power, staged deterrence system designed to reduce habituation. You correctly describe the roles of the sensors, with the PIR acting as an initial trigger and the ultrasonic sensor providing confirmation, and you link these choices appropriately to sustainability goals and false-trigger reduction. Feedforward: At times, the report treats “control” primarily as logic-based sequencing. While this can be appropriate at Level 4, you need to more explicitly connect your design to core control and instrumentation principles. This includes discussion of signal conditioning, threshold selection, sensor uncertainty, noise and false positives, and measurable response metrics. You should also clearly define what the “plant” is in your system and what variable is being controlled. At present, the system is closer to a discrete-event or rule-based system rather than a classical continuous control system. This is acceptable for the application, but it must be explicitly stated and justified within your modelling approach. Clearly defending these modelling choices will strengthen the technical credibility and coherence of your control analysis.	20	15
3. Cognitive and Intellectual Skills: Use your analytical skills to develop and explain models, interpret results, and justify your design choices with clear reasoning and evidence.		
Feedback: You justify your staged escalation approach well using both behavioural reasoning (habituation risk) and engineering considerations (duty cycle and power consumption). Your interpretation of the simulation outputs is	20	14

also clear, and you correctly link system states (persistence TRUE/FALSE) to the activation of the second deterrent stage, which shows good understanding of system logic and behaviour. Feedforward: The modelling approach requires stronger analytical justification. You introduce a first-order transfer function, $G(s) = \frac{1}{0.3s+1}$ based on a “confirmation delay”, based on a “confirmation delay”, however a pure logical or timing delay does not automatically correspond to first-order lag dynamics. This weakens the theoretical rigour of your dynamics modelling and needs clearer justification or revision. The evaluation also needs to go beyond timing-based interpretation. You should include at least a basic discussion of measurable performance criteria such as false positive rate, detection probability, response time distribution, energy consumption per event (or per day), and system robustness under environmental variation. In addition, where you claim sustainability or efficiency advantages over alternative systems (e.g. reduced wasted sensing or processing), these statements should be supported with simple quantitative estimates or back-of-the-envelope comparisons rather than qualitative descriptions alone. This will significantly strengthen the credibility and depth of your evaluation.		
4. Practical Application Skills: Apply what you know by modelling and simulating the system, considering real-world factors like cost and power supply, and show how your design works in practice.		
Feedback: You show strong practical application through the combination of Simulink verification and a TinkerCAD prototype implementation. This creates a good applied workflow, moving from simulation to physical representation. The staged logic, persistence check, and cooldown timer are also well chosen for reducing false triggers and managing power consumption in a realistic deployment scenario. You also attempt to transition from simulation to a more ruggedised, real-world system through your ROM costing table. Feedforward: The power system design is currently referenced but not fully engineered. Although you include solar and battery components, the system is not properly sized or justified using calculations. You should explicitly estimate total load, define duty cycle assumptions, calculate required battery capacity, and justify solar panel sizing based on expected sun hours and appropriate safety margins. This is essential for meeting the brief requirement of operating without a conventional electrical power supply. The requirement for locally available or easily sourced components in Zimbabwe is also not fully addressed. Most of your ROM sourcing is based on Amazon or general consumer-market suppliers. You should include a short section discussing local procurement feasibility, including equivalent components, supply chain constraints, repairability, and maintenance considerations in the target environment. Finally, environmental protection specifications need further justification. The reference to an “IK20 requirement” is not fully explained or contextualised. IK ratings should be selected based on expected impact risk, and outdoor deployments typically also require consideration of IP ratings (dust and water ingress). Expanding this discussion will improve the realism and engineering completeness of your design.	20	16
5. Transferable Skills for Life and Professional Practice: You will be assessed on how clearly and professionally you write your report and organise it (15 marks). Your ability to present your work confidently and effectively in the presentation and answer questions will be evaluated. This includes communication, organisation, and attention to detail (10 marks).		
Feedback: Your report has a clear structure with a contents page and the expected academic sections (Introduction → Analysis & Design → Simulation → Discussion → Conclusion → References). Figures, tables, and block diagrams are used frequently and generally support the narrative well. The overall tone is mostly professional and appropriate for an engineering report.	25	19

Feedforward: There are still several presentation and formatting inconsistencies that affect the overall polish of the work. These include spacing issues, inconsistent capitalisation (e.g. “Deterrent” vs “Deterrent s”), and occasional typographic artefacts. Standardising these elements would improve readability and professionalism.

Figure referencing also needs correction. Some figures are referred to in the text in a way that does not match the numbering sequence (for example, references to “Simulink Figures 7 & 8” appear inconsistent with earlier figure ordering). You should ensure that all figures are correctly numbered and that references in the text match the final figure list exactly.

Finally, your report exceeds the 2000-word target at approximately 2241 words. To address this, reduce repetition, particularly in the simulation section and replace some descriptive narrative with more concise evaluation using clear performance metrics. This will improve clarity and help keep the focus on analysis rather than description.

Report Writing: 12/15

PP Presentation: 7/10

Assessment Mark (Assessment marks are subject to ratification at the Exam Board. These comments and marks are to give feedback on module work and are for guidance only until they are confirmed.)

Late Submission Penalties (tick if appropriate)

Up to 1 week late (40% Max)

Over 1 week late (0%)

74

