**First Report: Information for Marker**

**Student instructions**

The initial report should provide a more detailed reflection of the planned system, and where possible reflect the feedback given the initial presentation. It should be a maximum of 6 pages of text, with teams free to include diagrams/CAD diagrams/sketches which go beyond this 6 page text limit. The report focus on the same content as given in the First Presentation, with more in depth information. The report should contain:

* A coversheet specifying the team identiﬁer, team name and robot name together with the name, lab group and College of each team member
* Approach for solving the problem
* Sketches of the concepts you have considered (which may be photocopied/scanned hand drawings). Evaluation charts of these concepts together with a brief discussion of the advantages and disadvantages of each
* **Robot Concept and diagram.** This could be hand-drawn diagrams, CAD models or any format which conveys the approach and concept
* Overall System Level Diagram. Detailing how the electronics, hardware and software interacts
* **Mechanical** - consideration of materials and construction method for chosen design. Reasonable size. Consideration of motor/ sensor placements and possible interactions.
* **Electronics/Sensing.** This should include a list of sensors/circuits required, any circuit diagrams/block diagrams which may have already been developed and or tested. Discussion as to if/why some processing will be performed in electronics opposed to software (e.g. obtaining digital outputs from analogue signals) and initial specification of interfaces
* **Software.** Exploration and navigation algorithms. Interface to electronics, discussion of choice of algorithms, any failure detection/recovery which will be implemented.
* Integration between hardware electronics and software
* What is the most risky/challenging aspect of the project?
* Gantt Chart (resource/time allocation)

Where possible, teams should aim to update their plans to reflect feedback given in the first presentation.

Teams should submit the report on Moodle by 4pm on on the day of the deadline.

Marking guide:

6 – very good work

5 – satisfactory work

4 – minimally acceptable

1-3 not normally awarded, clear underperformance

Less than 22/30 is a sign that the team is not on track to achieve standard credit.

**First Report Mark Scheme**

Team: ………………………………..

Date:………………………………….

Marker: ……………………………….

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| --- | --- | --- |
| **Presentation Area** | **Comments** |  |
| **Team Planning/Organisation**   * Team structure/management * Gantt Chart * Reasonable Expectations | Not much discussion of structure/management. Gantt is ok, but needs detail on mile stones + dependencies. When will 1st robot be running? | 4 /6 |
| **Overall Concept**   * Exploration of concepts * Concept selection * Reasonable Approach | A few requirements considered with some discussion.  Broad appraoch seems OK | 5/6 |
| **Mechanical**   * Consideration of materials * Consideration of fabrication methods * Reasonable Size * Consideration of sensors/motor placement | Some consideration of material, but not much evidence of though about structural rigidity.  No calculations of motor torque. How can you be sure either motor will be sufficent for the ramp?  Passing reference to sensor placement with no technical arguments of the considerations | 3/6 |
| **Electrical**   * Sensor selection * Appropriate choice of sensors * Software/Electrical discussion * Interface to software | Metal detector – how does it work? Description quite different to circuit.  Colour sensor – circuit drawn has no input!  Discussion of digital vs analog superfical | 3/6 |
| **Software**   * Interface to electronics considered * Overall strategy/structure * Appropriate algorithms chosen * Implementation realistic | Lacking any detail. Approach seems to rely on python + CV.  What processing happens on Arduino?  What about all electronics sesnors?  White line following by CV?  What is navigation algorithm? | 3/6 |
| Total Mark |  | 18/30 |

Comments: This team is behind and needs to apply engineering and thought in all areas rather than simple box ticking to mention required aspects.