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| Please accomplish the following check list to allow for accurate marking of your assignment. | | | | |
|  | **Item** | **your assignment details** | | **Comments** |
| 1 | Names and ID numbers of Group Members | Zhaohui Liang 21012755  Xuefeng Huo 21012752  Baichuan Zhang 21012651 | | (maximum of 3 members in a group) |
| 2 | Operating System used for testing your codes | Windows 10 | | Note that we have start-up codes for Windows 10 or 11/macOS/Ubuntu Linux. |
| 3 | Compiler used | gcc 13.1.0 | | Note: gcc 13.1.0 (or later) or clang 14.0 (for macOS) |
| 4 | IDE used | Visual Studio Code | | (e.g. SublimeText 3 or Visual Studio Code) |
| 5 | Complete source codes (cpp, h files), makefile, solution file | Yes | | you are required to submit the complete source codes, including the makefile, tasks.json, or project solution file |
| 6 | Algorithm implementation | Fuzzy rules | full | Indicate ‘**full**’, if you have completed the implementation of a component of the algorithm, ‘partial’, if you are only submitting a partial implementation, or ‘none’ you did not implement the algorithm component. |
| Fuzzy membership functions | full |
| Defuzzification | full |
| 7 | Performance characteristics of your fuzzy controller | Initial cart position (in meters) | x = 1 | This value must be set to 1m. as given in the start-up codes. |
| **Minimum** initial angle (in degrees) | θ = -60 degrees | (e.g. -40 degrees)  Note: the bigger the magnitude of the initial angle that your fuzzy controller can handle, the better. |
| **Maximum** initial angle (in degrees) | θ = 60 degrees | (e.g. +20 degrees)  Note: the bigger the magnitude of the initial angle that your fuzzy controller can handle, the better. |
| **Maximum** balancing time (in seconds) | infinity | Write infinity if the controller can keep the pole balanced forever; otherwise, put the maximum balancing time in sec. |
| **Stability** | Yes | Can your controller stabilise the cart-pole system at the centre of the platform with zero angle? |
| 8 | Fuzzy Controller Details | Yes | | Have you submitted the documentation of your Fuzzy Controller details? Please follow the algorithm documenttion guide. |
| 9 | Control Surface | Yes | | Have you submitted the Experiment Results (Control surface) in Excel Worksheet format? |
| 10 | Enhancements/Extra Features Added | Yes  Baby Sitting and Grid Search | | e.g. any optimisation strategies employed in finding the values for A, B, C and D, parameters of the fuzzy membership functions. |