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| **Primary Source Description** | **Development Phase** | **Changes made due to it** | **Reasons for changes** |
| Observation of motion similar to simple-harmonic motion | Hard Code, 1.0 | Attempt to damp the system | This kind of motion would take up theoretically infinite energy/electricity to keep up, thus not practical |
| Observation of continual increase in the amplitude of the pendulum | Hard Code, 1.0 | Development of “Hard Code, 2.0” which uses a method I refer to as “tinker” | Unable to keep pendulum upright, thus unable to control environment |
| Observation of unrealistic smoothness in the pendulum’s control | Hard Code, 2.0 | Development of a new virtual environment in the genetic algorithm phase | A more accurate virtual environment is desired in order to better evaluate the control system’s effectiveness |
| Observation of a constant non-zero velocity when zero theta is achieved, leading to the cart’s continual movement away from its starting point | Hard Code, 2.0 | Development of the genetic algorithm agent, in order to try to achieve both zero theta and zero velocity at the same time | This is not viable in a real system as the non-zero velocity would affect the theta due to frictional forces or would move the cart indefinitely in an ideal system. |
| Test results of Genetic Algorithm Agent run-time | Genetic Algorithm | Development of Artificial Neural Network Agent | This would not be a viable solution to any system running real-time, as the solution would be achieved too late. The development of the artificial neural network agent aims to solve this issue. |
| Test results of Artificial Neural Network Agent | Artificial Neural Network | Completion of Project | As the tests results show a success when compared to an internet-based standard, I have statistical evidence of the agents success. |