**Model Predictive Control (MPC)**

Compilation

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| Your code should compile. | Code must compile without errors with cmake and make.  Yes, complies with no issues |

Implementation

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| The Model | Model is detail. This includes the state, actuators and update equations. |
| Timestep Length and Elapsed Duration (N & dt) | Initially I started with n=10 & dt=0.4. This would run well in low speeds but wanted to push it higher  Speeds or at least for most CA highway limit of 65MPH. I changed the value to n=20 and dt=0.1. Here I  Could achieve speeds upto 55mp. But at 65mph it would go out of the track. Then I went with the example  <https://github.com/udacity/CarND-MPC-Quizzes/blob/master/mpc_to_line/solution/MPC.cpp> with  N=25 and dt=0.05. This works well at speed 65MPH. Please see video. |
| Polynomial Fitting and MPC Preprocessing | Yes, a polynomial is fitted to waypoints. |
| Model Predictive Control with Latency | Yes, 100 millisecond latency is implemented.  Yes thread sleep is implemented which delays signal to actuators. Line# 244 in main.cpp |

Simulation

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| The vehicle must successfully drive a lap around the track. | Car does use the curbs aggressively but never leaves the track. |