Reprot of group 2

- The Aim of this homework is to verify the behaviour of an Adaptive Cruise Control.
- The Controller and plant are implemented in Simulink as the following figure:

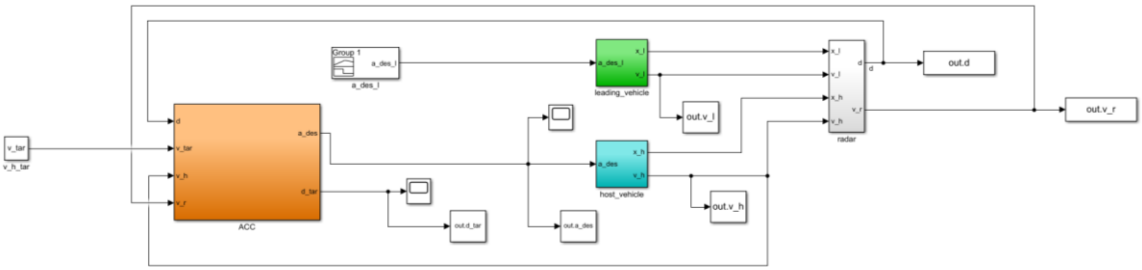

Figure 1. Overall View

- We have implemented the controller in two different ways. At first through the simple method and then through the hysteresis method. The figures are following:

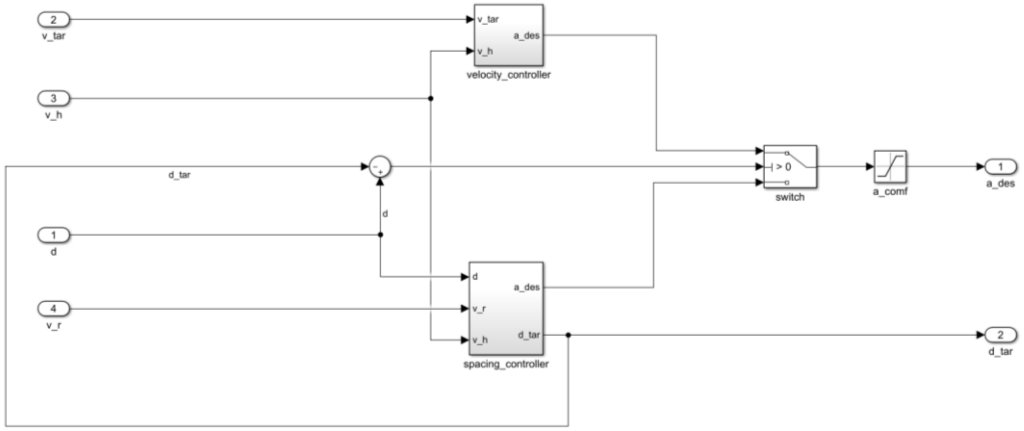

Figure 2. Simple controller

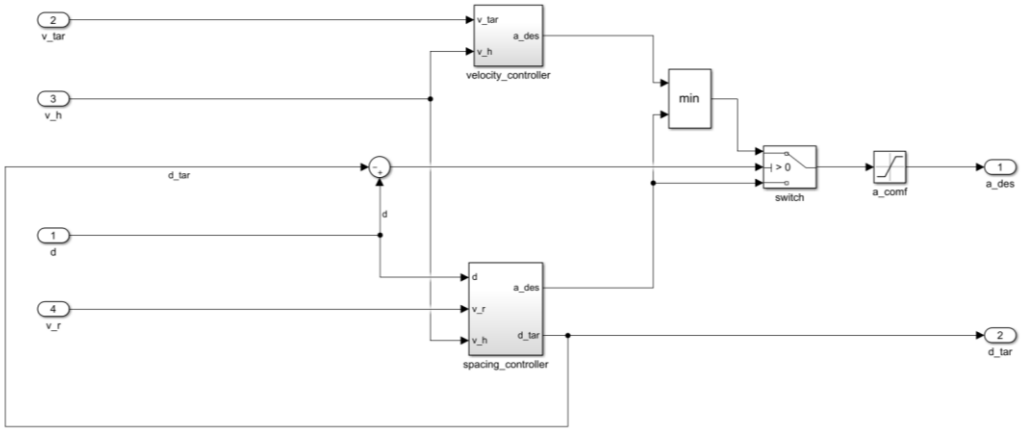

Figure 3. The hysteresis approach

- By employing the simple method we get a chattering in the control input and the measured signals are as following:

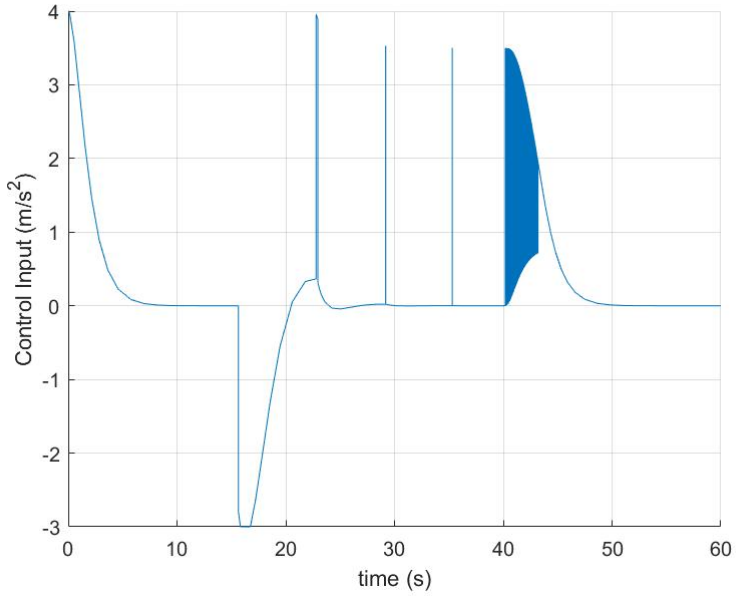

Figure 4. Control Input with chattering

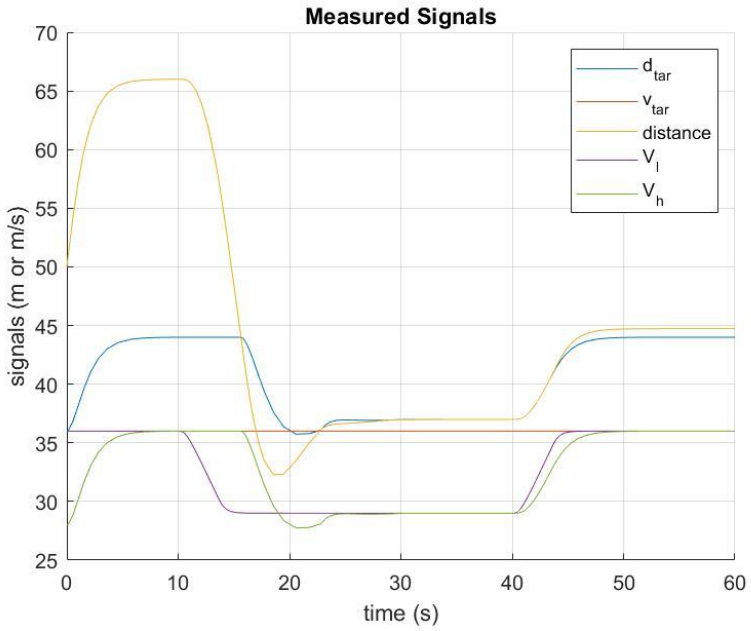

Figure 5. Measured Signals, Simple method

- By implementing the hysteresis method we can avoid control input chattering.

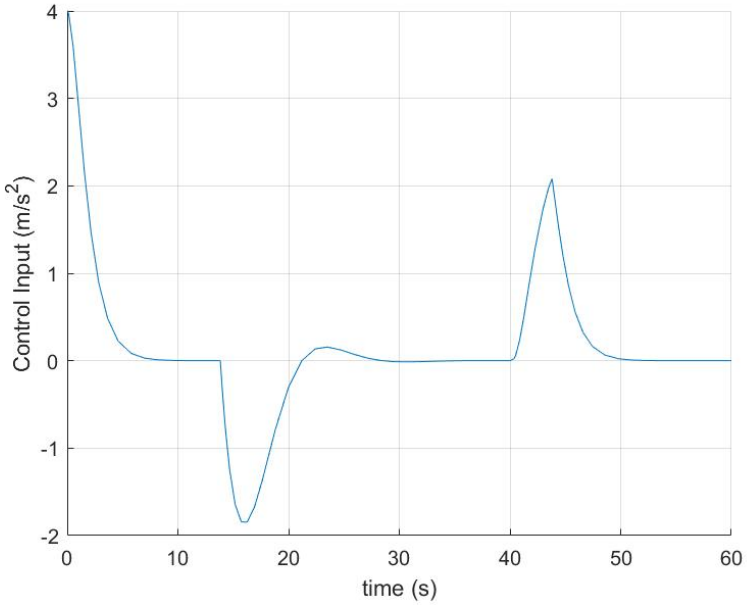

Figure 6. Control Input Hysteresis

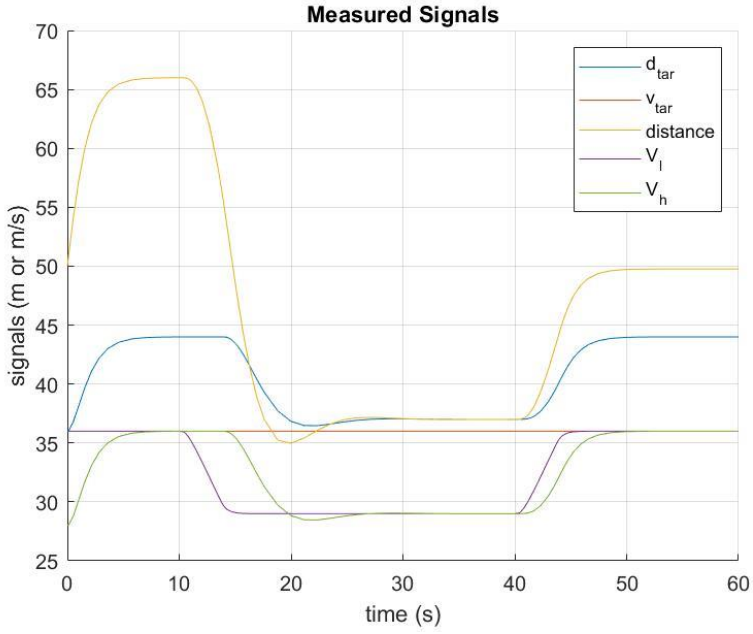

Figure 7. Measured Signals, Hysteresis approach

- The second controller improves passengers comfort by avoiding chattering and performing smother changes in the velocity.