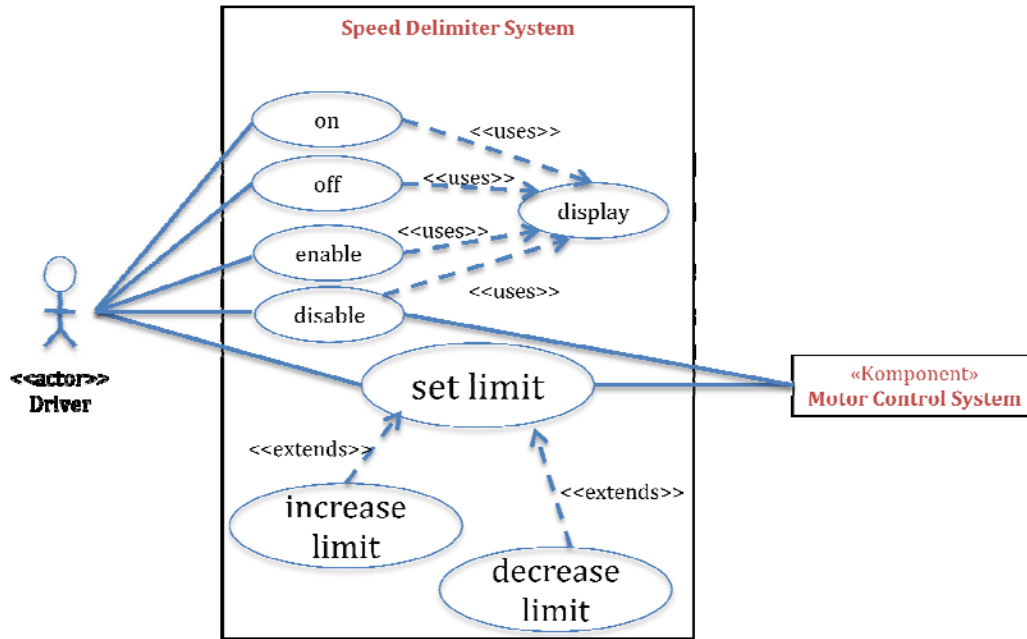


Question/Assignment 1 [3 pts]

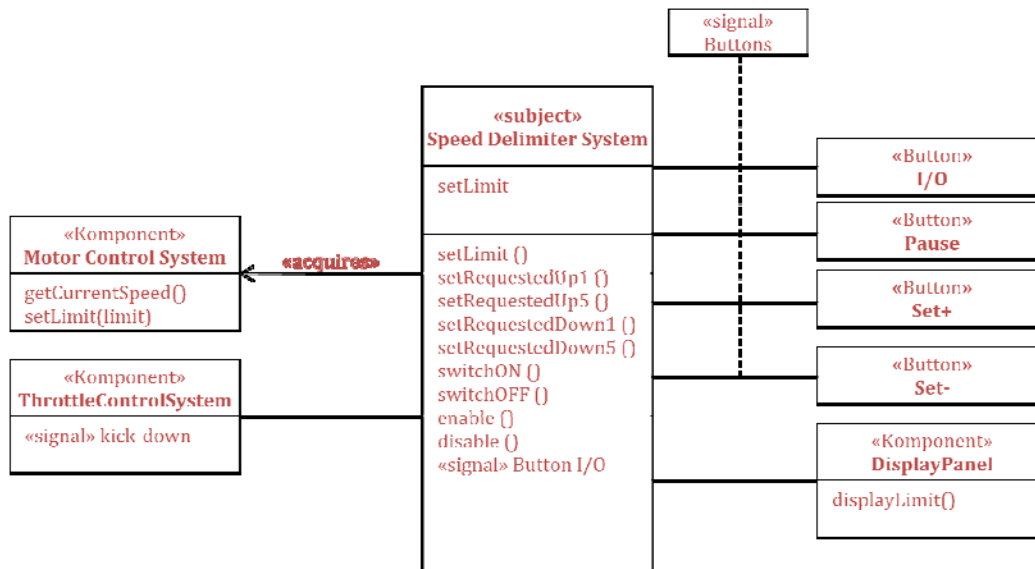
Structure: speed delimiter system, speed limit, throttle, vehicle, driver, gas pedal, button panel, display panel, on/off switch, pause button, set+ button, set- button, ...

Behavior: set speed limit, limit throttle, exceed speed, phsh gas pedal, switch on/off, enable/disable, increase speed limit, decrease speed limit, ...

Question/Assignment 2 [5 pts]

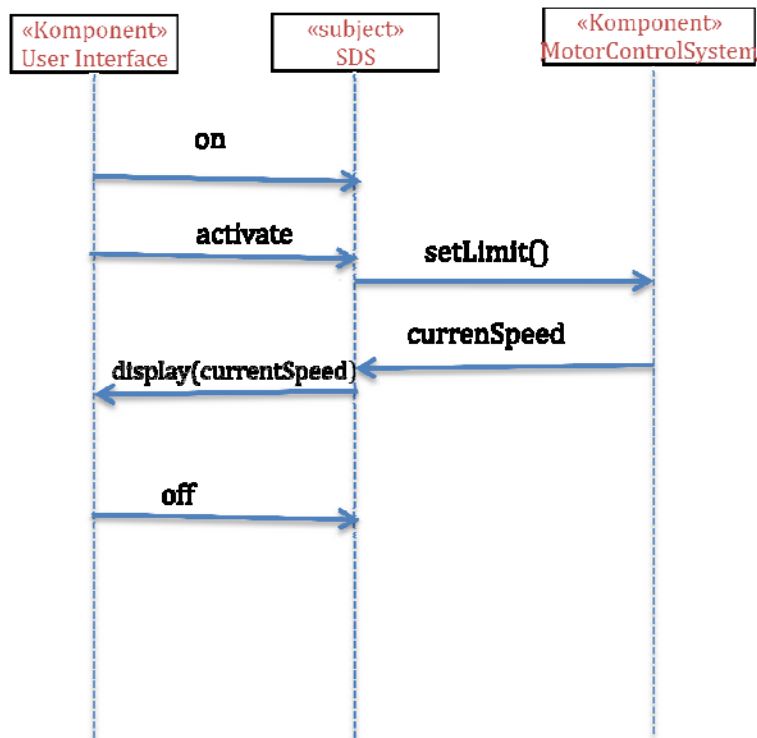


Question/Assignment 3 [7 pts]



Question/Assignment 4 [6 pts]

Question/Assignment 5 [4 pts]



Part II – Open Questions [25/50 pts]

Question 6 [5 pts]

Is not physical, hard to visualize, difficult to understand, labor intensive, limited automation

Question 7 [1 pt]

Humans think and communicate based on abstractions (concepts).

Question 8 [2 pt]

(1) Nouns in the domain glossary are potential candidates for classes of the system (structure), and (2) verbs in the domain glossary are potential methods in these classes (behavior).

Question 9 [1 pt]

The façade pattern prescribes how the presentation of an entity and its realization must be separated, which makes these two individual aspects of one entity more cohesive.

Question 10 [1 pt]

Entities can be extended to add attributes and behavior, however they should not be changed, because this change might have propagating effects on many other existing dependent entities.

Question 11 [1 pt]

Verification! Code reviews is an inspection technique that helps to assess whether all design artifacts have been implemented in code.

Question 12 [2 pt]

Positive: Reuse may decrease software cost, because we can quickly add functions without having to develop them from scratch.

Negative: Reuse may increase software cost, because we have to understand other peoples' code, integrate and test it.

Question 13 [3 pt]

Through self-descriptiveness (SD), i.e., what is the amount of information available in the code? Express this as percentage $SD = CLOC / LOC$.

Question 14 [3 pt]

Function point measures depend on subjective weighting factors for difficulty or complexity.

Question 15 [3 pt]

Coupling represents the extent to which entities interact. Having few interaction points facilitates integration testing through having to apply a lower number of test cases.

Question 16 [2 pt]

(1) Scrum is a method for project management (process level), whereas (2) Extreme Programming is a collection of best practices and advice for the programming task (product level).

Question 17 [3 pts]

(1) A measure is an objective property that can be expressed as number. (2) A metric is a measurement-theoretical (empirical) mapping between a number and a property. (3) A metric is a validated measure.

Question 18 [2 pts]

Interval scale restricts the permissible operations to =, <, >, and equality of intervals. Ratios have no meaning.

Question 19 [1 pt]

In software testing, as test coverage criteria.

Question 20 [1 pts]

The fitness function represents the time it takes to execute the code under consideration.