

C Programming Project

Implement the following Vehicle Control system with the specifications listed below:

1. Ask the user if he/she wants
 - a. Turn on the vehicle engine
 - b. Turn off the vehicle engine
 - c. Quit the system
2. If chose to "Quit the system": Quit program
3. If chose to "Turn off the vehicle engine": Ask him/her again what he/she wants to do (Requirement 1)
4. Once a choice has been chosen, print on screen the system state.
5. If chose to "Turn on the vehicle engine", display "Sensors set menu", menu that simulates the vehicle sensors readings.
 - a. Turn off the engine
 - b. Set the traffic light color.
 - c. Set the room temperature (Temperature Sensor)
 - d. Set the engine temperature (Engine Temperature Sensor)
6. While the engine is ON, menu in requirement 5 must be always displayed and waits for an answer.
7. Based on the answer of requirement 6.
 - a. Based on traffic light data (Take it as input from console, we will assume that this is the sensor read value)
 - i. If the traffic light is 'G' set vehicle speed to 100 km/hr

- ii. If the traffic light is 'O' set vehicle speed to 30 km/hr
 - iii. If the traffic light is 'R' set vehicle speed to 0 km/h
- b. Based on room temperature data (Take it as input from console, we will assume that this is the sensor read value)
 - i. If temperature less than 10, Turn AC ON and set temperature to 20
 - ii. If temperature is greater than 30, Turn AC ON and set temperature to 20
 - iii. If temperature is otherwise, Turn AC OFF
- c. Based on engine temperature data (Take it as input from console, we will assume that this is the sensor read value)
 - i. If temperature less than 100, Turn "Engine Temperature Controller" ON and set temperature to 125
 - ii. If temperature is greater than 150, Turn "Engine Temperature Controller" ON and set temperature to 125
 - iii. If temperature is otherwise, Turn "Engine Temperature Controller" OFF
- d. If vehicle speed is 30 km/hr
 - i. Turn ON AC if it was OFF and set room temperature to: $\text{current temperature} * (5/4) + 1$
 - ii. Turn ON "Engine Temperature Controller" if it was OFF and set engine temperature to: $\text{current temperature} * (5/4) + 1$

e. Display the current vehicle state after applying 7.a to 7.d

i. Engine state: ON/OFF.

ii. AC: ON/OFF. iii. Vehicle Speed.

iii. iv. Room Temperature.

v. Engine Temperature Controller State.

vi. Engine Temperature.

8. If chose in menu of requirement 5 to “Turn off the engine”, the menu of requirement 1 must be displayed.