



# FUEL PUMP MACHINE

EDWIN KABURU – EMBSYS-330

# FUEL PUMP Behavior

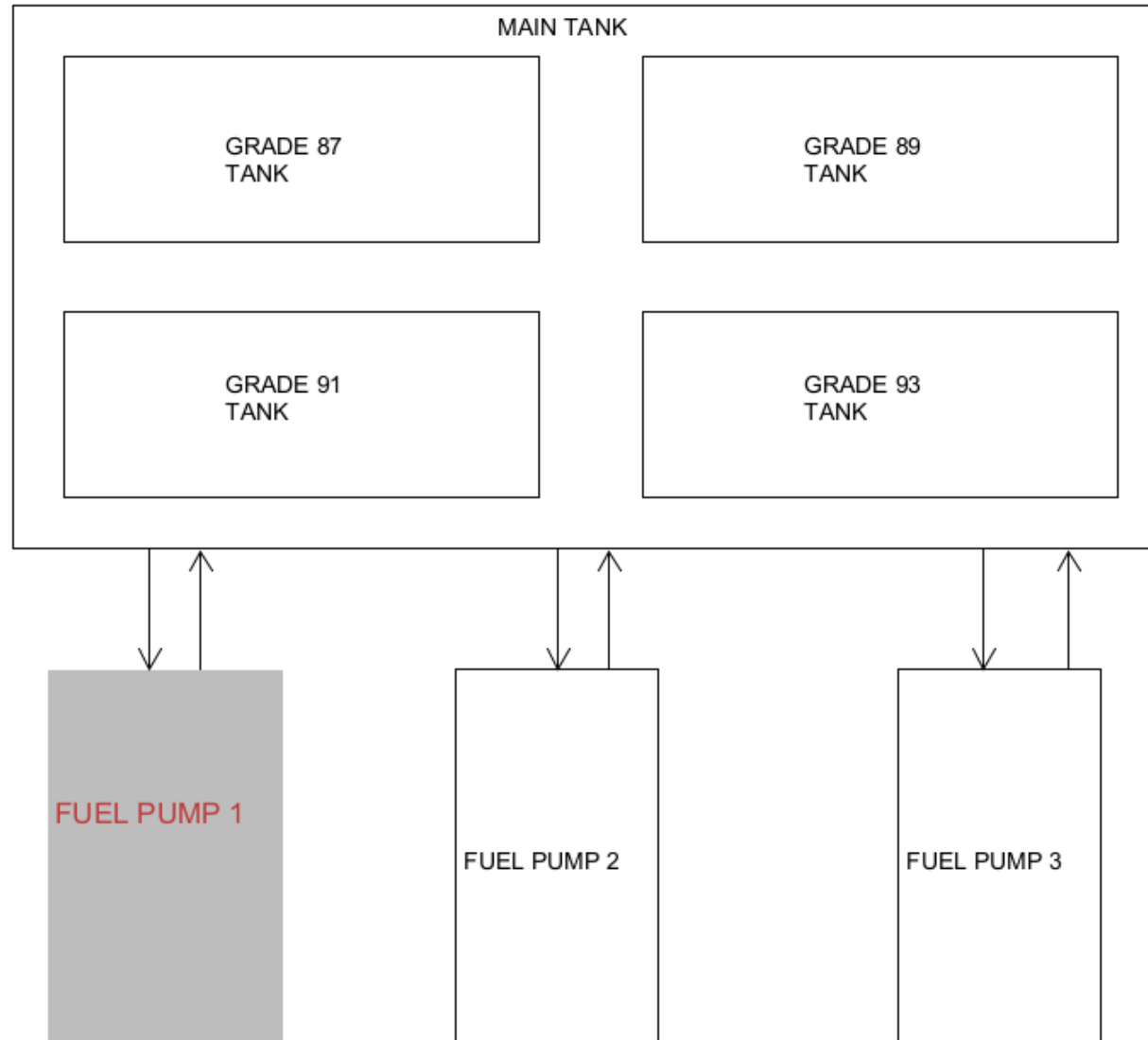
- ▶ Commonly found at gas stations.
- ▶ Interaction point between the fuel storage tank and the driver, whose primary concern is to fill their vehicle's tank with fuel/gas.
- ▶ The driver's / user's, behavior/interaction with the fuel pump machine, generally involves.
  - Making a payment (either cash or credit)
  - Select a fuel grade of choice (Diesel, 87, 89, 91, 93)
  - Lift nozzle and begin fueling
  - Stop fueling and return nozzle
  - Take receipt
  - Leave premise.

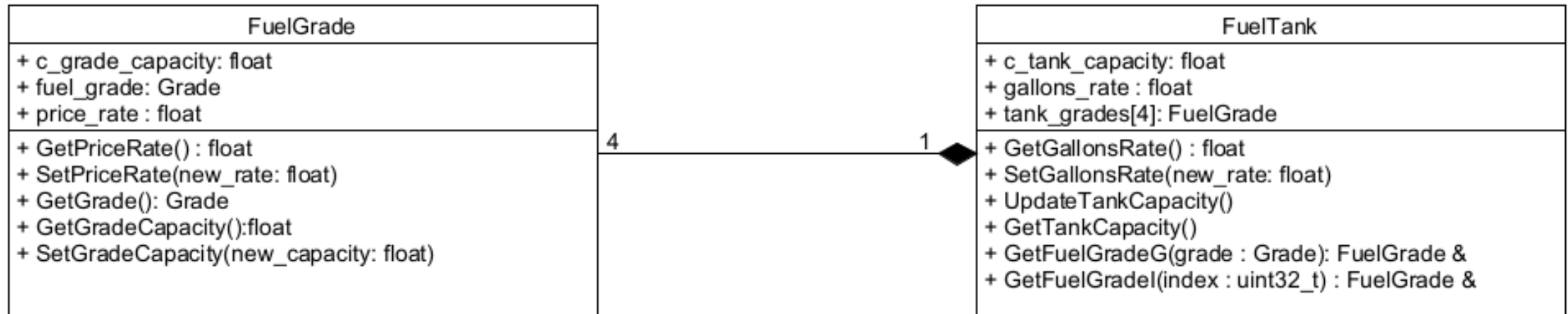
# FUEL PUMP Behavior

- ▶ The Fuel Pump Machine behavior, generally involves.
  - Accepting a payment (total amount )
  - Accepting and validating a fuel grade
  - Requesting certain units of gas/fuel from Storage Tanks. That Passes through a flow control value regulating the flow speed.
  - User Interface, LCD (usually instructions or information for user)
- ▶ Storage Tank, is a system and have its own behavior.

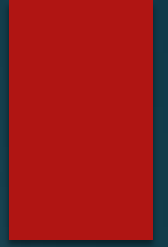
# FUEL STORAGE TANK Behavior Oversimplified

- ▶ Fuel Storage Tank, is a collection of multiple tanks. Referred as MAIN\_TANK
- ▶ Each Tank, that make up the MAIN\_TANK, is a different grade(87,89, etc..), with general properties outlined.
  - Capacity
  - Price Rate (1 to 10) – some grades are more expensive, depends the octane.
    - 87 have the lowest octane so it cost less, 93 highest octane much more expensive
  - Grade
- ▶ MAIN\_TANK general properties
  - Capacity – Total/sum capacity of the collection of tanks under it belt.
  - Gallons Rate (1 to 10) - units of gas/fuel to send to a pump.



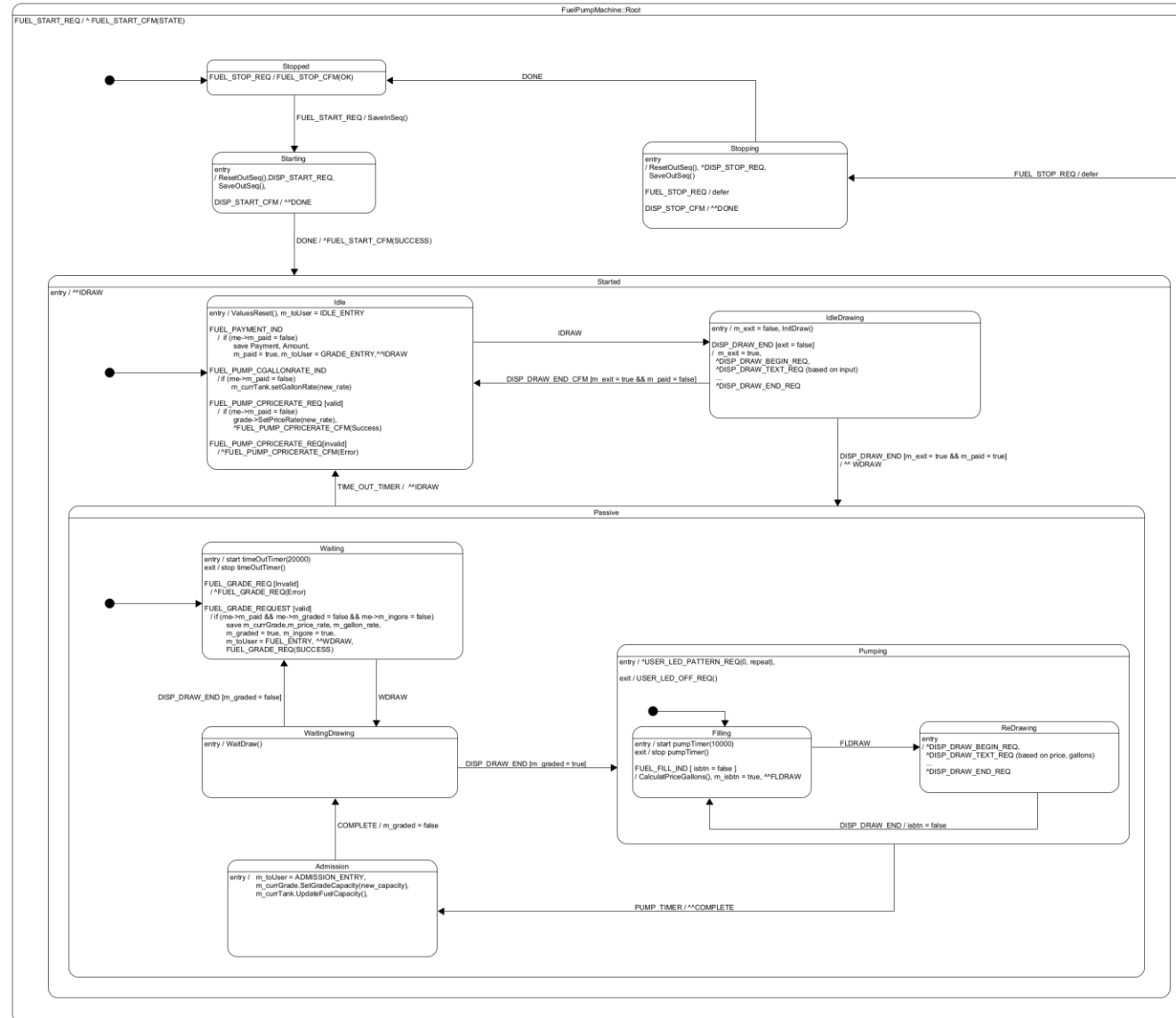


# FUEL STORAGE TANK Behavior Oversimplified



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```
FuelTank MAIN_TANK = {  
    {  
        { 100.00, GRADE_87, 0.25 },  
        { 100.00, GRADE_89, 0.35 },  
        { 100.00, GRADE_91, 0.45 },  
        { 100.00, GRADE_93, 0.55 }  
    },  
    400.00, 0.10  
};
```





# Links

- ▶ <https://www.eia.gov/energyexplained/gasoline/octane-in-depth.php>
- ▶ <https://auto.howstuffworks.com/gas-pump.htm>

