**TRAIN MODEL**

Inputs

* Power Command
* Setpoint speed command
* Brake command
* Speed limit
* Acceleration limit
* Deceleration limit
* Route information system
* Temperature control
* Door open
* Door close
* Transponder input
* Track circuit input
* Light controller for tunnels
* Emergency brake from passenger
* Authority

Outputs

* Actual speed (velocity)
* Passenger count
* Crew count
* Location (GPS)
* Setpoint
* Failure status
  + Train engine failure
  + Signal pickup failure
  + Brake failure