Ethan Tuning, Neil Brommer, and Justin O'Neel
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CSCD 350 Team #14 Task 4
Command Unrolling

********** BEHAVIORAL **********

DO SET REFERENCE ENGINE *Identifier*
DO SET *Identifier* SPEED Number
DO SET *Identifier* DIRECTION FORWARD
DO SET *Identifier* DIRECTION BACKWARD
DO SET SEMEPHORE *Identifier* STOP
DO SET SEMEPHORE *Identifier* CAUTION
DO SET SEMEPHORE *Identifier* PROCEED
DO SET SIGNAL LIGHT *Identifier* STOP
DO SET SIGNAL LIGHT *Identifier* PROCEED
DO BRAKE *Identifier*
DO SELECT DRAWBRIDGE *Identifier* POSITION UP
DO SELECT DRAWBRIDGE *Identifier* POSITION DOWN
DO SELECT ROUNDHOUSE *Identifier* POSITION Angle CLOCKWISE
DO SELECT ROUNDHOUSE *Identifier* POSITION Angle COUNTERCLOCKWISE
DO SELECT SWITCH *Identifier* PATH PRIMARY
DO SELECT SWITCH *Identifier* PATH SECONDARY
DO SELECT WATER TANK *Identifier* FLOW ON
DO SELECT WATER TANK *Identifier* FLOW OFF
@DO FORCE *Identifier* SPEED Number
@DO FORCE *Identifier* DIRECTION FORWARD
@DO FORCE *Identifier* DIRECTION BACKWARD
@DO FORCE *Identifier* POSITION TRACK *Identifier* DISTANCE Number FROM START
@DO FORCE *Identifier* POSITION TRACK *Identifier* DISTANCE Number FROM END
@DO SET COLLISIONS ENABLE
@DO SET COLLISIONS DISABLE

********** STRUCTURAL **********

LOCATE STOCK *Identifier* ON *TrackLocator*
MAP OCCUPANCY SENSOR *Identifier*+ TO ACTUATOR *Identifier*
MAP OCCUPANCY SENSORS *Identifier*+ TO ACTUATOR *Identifier*
MAP SPEED SENSOR *Identifier*+ TO ACTUATOR *Identifier* RESPOND PROCEED WHEN SPEED LESS THAN *Number*
MAP SPEED SENSOR *Identifier*+ TO ACTUATOR *Identifier* RESPOND PROCEED WHEN SPEED GREATER THAN *Number*
MAP SPEED SENSOR *Identifier*+ TO ACTUATOR *Identifier* RESPOND STOP WHEN SPEED LESS THAN *Number*
MAP SPEED SENSOR *Identifier*+ TO ACTUATOR *Identifier* RESPOND STOP WHEN SPEED GREATER THAN *Number*
MAP SPEED SENSORS *Identifier*+ TO ACTUATOR *Identifier* RESPOND PROCEED WHEN SPEED LESS THAN *Number*
MAP SPEED SENSORS *Identifier*+ TO ACTUATOR *Identifier* RESPOND PROCEED WHEN SPEED GREATER THAN *Number*
MAP SPEED SENSORS *Identifier*+ TO ACTUATOR *Identifier* RESPOND STOP WHEN SPEED LESS THAN *Number*
MAP SPEED SENSORS *Identifier*+ TO ACTUATOR *Identifier* RESPOND STOP WHEN SPEED GREATER THAN *Number*

********** CREATIONAL **********

CREATE ACTUATOR *Identifier* AS CROSSBUCK ON *TrackLocator*
CREATE ACTUATOR *Identifier* AS GATE ON *TrackLocator*
CREATE ACTUATOR *Identifier* AS SIGNAL LIGHT ON *TrackLocator* TOWARD (START | END)
CREATE ACTUATOR *Identifier* AS SEMAPHORE ON *TrackLocator* TOWARD (START| END)
CREATE ACTUATOR *Identifier* AS STATION ON *TrackLocator*
CREATE ACTUATOR *Identifier* AS WATER TANK ON *TrackLocator*
CREATE POWER POLE *Identifier* ON TrackLocator
CREATE POWER CATENARY *Identifier* WITH POLES *Identifier* +
CREATE POWER SUBSTATION *Identifier ReferenceAccess* DELTA *CoordinatesDelta* WITH SUBSTATIONS *Identifier*
CREATE POWER STATION *Identifier ReferenceAccess* DELTA *CoordinatesDelta* WITH SUBSTATIONS *Identifier* +
CREATE SENSOR *Identifier* FOR OCCUPANCY ON *TrackLocator* RANGE *Number*
CREATE SENSOR *Identifier* FOR SPEED ON *TrackLocator* RANGE *Number*
CREATE STOCK ENGINE *Identifier* AS DIESEL ON *TrackLocator EngineLocator*
CREATE STOCK ENGINE *Identifier* AS DIESEL ELECTRIC ON *TrackLocator EngineLocator*
CREATE STOCK ENGINE *Identifier* AS ELECTRIC ON *TrackLocator EngineLocator*
CREATE STOCK ENGINE *Identifier* AS STEAM WITH WATER SUPPLY *Number* RATE *Number* ON *TrackLocator EngineLocator*
CREATE STOCK ENGINE *Identifier* AS SWITCHER ON *TrackLocator EngineLocator*
CREATE STOCK CAR *Identifier* AS BOX
CREATE STOCK CAR *Identifier* AS CABOOSE
CREATE STOCK CAR *Identifier* AS FLATBED
CREATE STOCK CAR *Identifier* AS PASSENGER
CREATE STOCK CAR *Identifier* AS TANK
CREATE STOCK CAR *Identifier* AS TENDER
CREATE ENGINE *Identifier* AS DIESEL ELECTRIC ON *TrackLocator EngineLocator*
CREATE ENGINE *Identifier* AS DIESEL ON *TrackLocator EngineLocator*
CREATE ENGINE *Identifier* AS ELECTRIC ON *TrackLocator EngineLocator*
CREATE ENGINE *Identifier* AS STEAM WITH WATER SUPPLY *Number* RATE *Number* ON *TrackLocator EngineLocator*
CREATE ENGINE *Identifier* AS SWITCHER ON *TrackLocator EngineLocator*
CREATE TRACK BRIDGE *Identifier ReferenceDeltaStartEnd*
CREATE TRACK BRIDGE DRAW *Identifier ReferenceDeltaStartEnd* ANGLE *Angle*
CREATE TRACK CROSSING *Identifier ReferenceDeltaStartEnd*
CREATE TRACK CROSSOVER *Identifier ReferenceAccess* DELTA START *CoordinatesDelta* END *CoordinatesDelta* START *CoordinatesDelta* END *CoordinatesDelta*
CREATE TRACK CURVE Identifier *ReferenceAccess* DELTA START *CoordinatesDelta* END *CoordinatesDelta* ((DISTANCE ORIGIN *Number*) | (ORIGIN *CoordinatesDelta*))
CREATE TRACK END *Identifier ReferenceDeltaStartEnd*
CREATE TRACK LAYOUT *Identifier* WITH TRACKS (*Identifier*)+
CREATE TRACK ROUNDHOUSE *Identifier ReferenceAccess* DELTA ORIGIN *CoordinatesDelta* ANGLE ENTRY *Angle* START *Angle* END *Angle* WITH *Integer* SPURS LENGTH *Number* TURNTABLE LENGTH *Number*
CREATE TRACK STRAIGHT *Identifier ReferenceDeltaStartEnd*
CREATE TRACK SWITCH TURNOUT *Identifier ReferenceAccess* STRAIGHT DELTA START *CoordinatesDelta* END *CoordinatesDelta* CURVE DELTA START *CoordinatesDelta* END *CoordinatesDelta* DISTANCE ORIGIN *Number*
CREATE TRACK SWITCH WYE *Identifier ReferenceAccess* DELTA START *CoordinatesDelta* END *CoordinatesDelta* DISTANCE ORIGIN *Number* DELTA START *CoordinatesDelta* END *CoordinatesDelta* DISTANCE ORIGIN *Number*

********** MISC **********

@CLOCK ((*Integer Number* | PAUSE | RESUME | UPDATE)) ?
@EXIT
@RUN *LiteralString*
@SCHEDULE AT *Number* @WAIT *Number*
USE *Identifier* AS REFERENCE *CoordinatesWorld*

********** VIEW **********

OPEN VIEW *Identifier* ORIGIN (*CoordinatesWorld* | ('$' *Identifier*)) WORLD WIDTH *Integer* SCREEN WIDTH *Integer* HEIGHT *Integer*
CLOSE VIEW *Identifier*
SYNC VIEW *Identifier* (NORTH ON *Identifier* | TRACK ON *Identifier*)
UNSYNC VIEW *Identifier*