**Technical Design Doc**

**GAME LOGIC**

**GAMEWORLD**

-initialization()

-creates the list of roads/intersections

-Run Stepper()

-calls update on every element of the list

**Road**

-initialization()

-creates list of cars

-Check to see if car is operating

-Updates every car in its list and decides where new cars should go

-Decides the direction for cars just added to the list

-Passes any cars that left it to the road receiving it

**Car**

-update()

-CheckMoved()

-Set-unmoved

-Else

-Check if it can move a full step safely (% chance of false positive): checkfullmove()

-move()

-else check if it can move at all, safely: checkpartmove()

-part move()

-set state to moved

-CheckFullMove()

-Checks if it will collide with another car or stop signal this step

-or if car is unable to move at full speed for any reason (not accelerated, etc. This controls acceleration)

-Cars check availability of an intersection using a grid over the intersection

-If the car has just entered the intersection, it asks the intersection which direction it should move

-CheckPartMove()

-Checks if it can move towards its destination at all without colliding with a stop signal or car

-Move()

-Moves a car its full distance down a road

-PartMove()

-Moves a car down a road until it reaches a car/stop signal

**OBJECT DATA**

**GAMEWORLD**

-list\_of\_roads Holds a list of every road and intersection

-stepper

**ROAD**

-place\_to is the road or intersection that cars will be passed to

-place\_from is the road or intersection that cars will retrieved from

-list\_of\_cars holds a list of every car on that road. Also doubles as queue of cars.

-single\_lane? The road is single-lane

-left\_lane? The road is the left lane of a double-lane road

-right\_lane? The road is the right lane of a double-lane road

-x**\_**pos The roads x position

-y\_pos The roads y position

**INTERSECTION**

-road\_to\_NORTH is the road or intersection that cars will be passed to north of the intersection

-road\_from\_NORTH is the road or intersection that cars will be retrieved from north of the intersection

-road\_to\_SOUTH is the road or intersection that cars will be passed to south of the intersection

-road\_from\_SOUTH is the road or intersection that cars will be retrieved from south of the intersection

-road\_to\_EAST is the road or intersection that cars will be passed to east of the intersection

-road\_from\_EAST is the road or intersection that cars will be retrieved from east of the intersection

-road\_to\_WEST is the road or intersection that cars will be passed to west of the intersection

-road\_from\_WEST is the road or intersection that cars will be retrieved from west of the intersection

-road\_to\_NORTH2 is the road or intersection that cars will be passed to north of the intersection

-road\_from\_NORTH2 is the road or intersection that cars will be retrieved from north of the intersection

-road\_to\_SOUTH2 is the road or intersection that cars will be passed to south of the intersection

-road\_from\_SOUTH2 is the road or intersection that cars will be retrieved from south of the intersection

-road\_to\_EAST2 is the road or intersection that cars will be passed to east of the intersection

-road\_from\_EAST2 is the road or intersection that cars will be retrieved from east of the intersection

-road\_to\_WEST2 is the road or intersection that cars will be passed to west of the intersection

-road\_from\_WEST2 is the road or intersection that cars will be retrieved from west of the intersection

-type\_size 1x1, 2x1,1x2, or 2x2

-type\_markings Lights, 4-way stop, 2-way stop vertical, 2-way stop horizontal

-list\_of\_cars holds a list of every car on that road

-queue\_of \_cars holds list of order of cars to be handled

-gate\_NORTH Border of intersection, used for stopping/queuing cars

-gate\_NORTH2

-gate\_SOUTH

-gate\_SOUTH2

-gate\_EAST

-gate\_EAST2

-gate\_WEST

-gate\_WEST2

-list\_of\_free\_spaces holds a list of the open spaces in an intersection

-list\_of\_blocked\_spaces holds a list of the blocked spaces in an intersection

**CAR**

-speed Hold current speed

-max\_speed Speed bases on personality, and car type

-personality Holds personality type

-type Holds type of car

-x\_location x-location on world

-y\_location y-location on world

-move\_full Next step is full

-move\_part Next step is a fraction of full move

-move\_none Next step is zero

-turnDir The Direction the car will move next step.

-has\_moved switched on after

-road\_change? Set TRUE when the car gets passed to another road

**Artistic Design Doc**

**Game World Objects**

**Tiles**

Roads

Single Lane

Solid Line

Straight

Corner [4 tiles]

Passing

Straight

Normal Intersection

Double Lane [2 Tiles wide]

Solid Line

Straight

Corner [4 tiles]

Passing

Straight

Normal Intersection

Left Turn Intersection

Intersection

2x2

Lights

4-Way Stop

2-Ways Stop (Both Directions)

2x1

Lights

4-Way Stop

2-Ways Stop (Both Directions)

1x1

Lights

4-Way Stop

2-Ways Stop (Both Directions)

One Way

Single Lane

Highway [2 Tiles wide]

Divided Sides

On/Off Ramp Clover-leaf [4 Tiles]

Yield Sign

Mirrored Version

Blank

Mirrored Version

Overpass

Scenery

Grass/Dirt

Full

Road Border Straight

Road Border Corner

Sidewalk

Border Road Straight

Border Road Corner Tight

Border Road Corner Wide

Buildings

Houses [1 or 2 Tiles]

Tall Buildings [1, 2, or 4 tiles]

Plants

Trees

Bushes

**Cars (colors personality dependant)**

Sedan

Van

Sports car

Pickup truck

Semi Truck

Bus

Police Cruiser

**UI**

**Buttons**

Menu

Single Button

Speed

4 Buttons

2 States

Background

Zoom

Background

Slider

Time Remaining

Background

Font

Traffic Options Tab

Button

Background

Buttons For every action

Intersection

Nothing

Lights

4-Way Stop

2-Ways Stop

2 States

Turing Lanes

Road

Speed

Statistics Tab

Button

Background

Font

Character Profiles

Average Joe

Stressed

Defensive

Grandma

Inebriated

Policeman Pete

Progress Tab

Button

Background

Stop Light Progress “Meter”

3 States

**Main Menu**

**Background**

Image(s)

Loading

Main Screen

**Buttons**

Start

2 States

Options

2 States

**Credits**

**Sounds**

Music

Sound Effects

Ambient

City

Rural

Birds

Driving/engine

Honking

Tires screeching

Crash

Voices

Average Joe

Stressed

Defensive

Grandma

Inebriated

Policeman Pete

Menu

Subtle click