**Traffic Density Calculation Model**

The system can be represented as a set of five tuple as follows:

S1 = (I,D,O,P,F)

P = {F1,F2}

I = {X1 : Live traffic video feed }

D = {y | y € Traffic signal timer database }

O = {Y1 : Traffic signal time }

F2 = F1(I);

F = F2 -> O

F1 = Density Calculation Function

F2 = Traffic Signal Timer Function

**Traffic Violation Calculation Model**

The system can be represented as a set of five tuple as follows:

S2 = (I,D,O,F1,F)

I = {X2 : GPS Co-ordinate of vehicle , X3 : Traffic signal timer )}

D = {y | y € Vehicle owner information and violation database }

O = {Y1 € (Yes ,No) }

F = F1(I) -> O

F1 = Violation Detection Function

Yes = violation detected

No = violation not detected