Road traffic analytics

Urban areas are developing so are the metropolitan cities. However due to the stringent laws and impromptu regional transport ministry, the ever increasing and expanding cities' roads have exhausted their traffic handling capacities. Hitherto there have been no major congestion and traffic imbroglio; though traffic Jams have become common.

But in no more time, this situation will be replaced with constant amps, congestion and superfluous queuing at signals and long waiting lines. To avert this situation and mollify the traffic flow, the Government officials are planning to make new roads by utilizing natural resources like hills, grass plains, forests and grazing lands meant for livestock farming. Obviously It will ease the traffic flow temporarily; making a more complex situation In the near future, as it will Just add a new congested traffic route disrupting the echo-system, residential life In that area.

To address this Issue, quantitative optimization with a combination of analytics can become an arbitrator to solve the problem. This paper attempts to derive an algorithm and prove that statistical analysis/analytics can be the best possible method to solve the issue. The algorithm is explained with help of a live case study for better understanding. We present research on developing models that regulate traffic flow and congestion in the Cookout suburbs. We review the modeling effort and describe experiments probing the predictive accuracy of the models.

Finally, we present research on building models that can identify current and future surprises, via efforts on modeling and controlling unexpected situations. 1 . INTRODUCTION: Machine learning and Intelligence are being

applied in multiple ways to addressing difficult challenges In multiple fields, Including transportation, energy, and healthcare. Research scientists at Microsoft Research have been engaged In efforts In all of these areas. [l] They are focusing on multilayer efforts at Microsoft Research to infer and forecast the flows of traffic.

The work leverages machine learning to build services that make use of both live streams of sensed information and large amounts of heterogeneous historical data. This has led to multiple prototypes and real-world services such as traffic-sensitive directions Maps. Focused work in this realm also stimulated new efforts In related areas, such as privacy and routing. 2. LITERATURE SURVEY: Traffic has been growing In major cities around the world given the increase in densities of cars on roads and the slow development of road infrastructure.

With research starting In 2002, research scientist and developer teams at Microsoft Research pioneered the use of machine learning methods to build predictive models for traffic[2]. The work led early on to prototypes that can Infer and predict the flow of traffic at different times into the future based on the analysis of large amounts of revise, such as traffic maps that show users how traffic is evolving over time, as well as in services that provide traffic-sensitive directions by considering the inferred speeds on roads that are not sensed directly.

Research on machine learning for traffic spanned several projects and has focused on both on principles and applications. Multiple technical and empirical studies were performed as part of this work. On the fielding of

applications, the research efforts sit behind the traffic- sensitive directions in Being Directions within Being Maps and the mobile directions arrive on the Windows Mango phones.

A portion of Microsoft Research's methods, tools, and software on predictive analytics for traffic were licensed externally in 2004 to traffic startup Inner shortly after the company was formed, helping to slingshot that company into the world as a leading international provider of traffic analyses and predictions. As part of efforts on learning about traffic flows from data, researchers have explored methods that enhance the safety and privacy of people who wish to help with the " scrounging" of real-time flows of road data from their mobile GAPS tat.

Principles of community sensing have been developed. These principles center on working with people under a " privacy budget" based on the use of the computations of the value of information for understanding flows over time on the road network. However, several methods, steps and techniques have been developed to monitor traffic, detect congestion and prevent Jams. A combination of analytics and statistics to provide better traffic management is still in infant stage. We have attempted to combine both for ultimate traffic flow management and coined a new term 'TRAFFIC ANALYTICS'. . SCENARIO OF TRAFFIC CONGESTION: The Law College Road and Karee Road are two such roads in Cookout suburbs which are heavily contested because of nasty human population. Unfortunately, every attempt to reduce the congestion has been failed and hence they are planning to widen it or build new roads. However the affected apartments have filed a PILL stating that the widening is against their interest. Similarly their second

plan, to develop a ring road attaching Sentential Bat Road and Pad road[3] is too kept on stay because of the publics demand.

Hence with the help of ex-commissioner of Punt ND Mayor, we have initiated the project with the help of transportation experts who will give a ground level idea and a specific clearance of how the traffic flows. 1 . Maximum Volume of Traffic Directional maximum traffic volume at peak hours should not exceed 5465 vehicles/hour. Actually, this is exceeded many times. 2. Existing carrying capacity of Law College Road The minimum number of the vehicles (emitting carbon monoxide) I. E. 12739 is considered as carrying capacity of Law College Road.

At times, about 70, 000 vehicles/day ply on the road. 3. Cost Analysis NP of the proposed road project is RSI. 5. Scores for 5 years at the rate of 12% per annum. AIR is 0. 25. 4. Carbon footprint As per the calculation based on Knox and VOCE emissions, the total carbon footprint of Law College Road is 41 , 66. 142. 49 tons/year (in terms of RSI. 467 Scores). Construction of proposed road will have its impact and it estimated at 2 - 3% only. Hence we can conclude for the following main points which will clearly lead us to a better understanding of our problem statement: 1.

The carrying capacity of the Law College Road is completely exhausted due to ever-increasing traffic volume which directs explicitly towards the need for alternatives, and new roads. . More even though the positive effects on Law College Road are compensated. If the proper mitigation measures are taken to reduce the negative impacts due to development activities then the

project will become environmentally sustainable as given in the Impact Analysis Statement. 3.

Environmentally planned with adequate funding and monitoring by City level committee (CLC) / project evaluation agency (PEA) of the Road Construction Project will lead to sustainable traffic management in the city. 4. After implementation of all the mitigation measures, based on the rating arterial, the project can be considered as Non-polluting Project because absolute value of impacts is +13 due to use of alternate roads of Bankcard and Pratt road with proper mitigation measures and positive impacts due to decongest on Law College Road absolute value becomes +37. 5.

All these scientific and planning studies, suggest the need of alternatives for the Law College Road[3]. 3. 1 Vehicle Classification and Configuration: Although there are various classification approaches available to various institutions/ organizations or end users of this Guideline, the responsible organization/institution ay use whichever method is deemed appropriate and applicable for the purpose at hand, depending on the quality of data required.