The Problem

REASONS THAT LED TO THE ACCIDENTS

o. of deaths	Cause of accident	Percentage
6	Rash driving	92.72
46	Drunk	
29	Red light jumping	3.16
17	Wrong-side driving	0.31

Blood on the Street

■ KILLED

2014 2015 2016
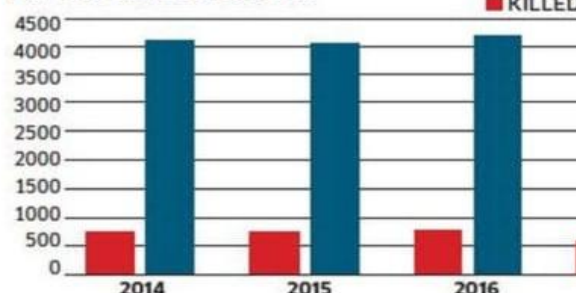
NEED FOR SPACE
WHERE'S THE ROAD?

THROUGH THE YEARS: VEHICLES ON HYD ROADS

2012	30.65 lakh
2013	33.72 lakh
2014	37.07 lakh
2015	40.59 lakh
2016	44.57 lakh
2017	48.74 lakh
2018	Over 50 lakh

The city has over 15 critical bottlenecks where traffic crawls during most times of the day and a majority of these are in some of the prime business areas. Increase of vehicles in these areas has made the situation worse.

Vinod Kumar Kanumala, FOUNDER, INDIAN FEDERATION OF ROAD

MAJOR AREAS SUFFERING FROM TRAFFIC CONGESTION

- Banjara Hills Road Number 3 to Nagarjuna Circle
- NFCL Junction at Punjagutta
- Prakash Nagar Flyover, Begumpet
- Dhobighat
- ESI bus stop near S R Nagar
- CTO circle near Paradise junction
- Minister Road
- KBR Park to Jubilee Hills Check Post
- PVNR expressway

Screenshots posted by

TRAFFIC GOES HAYWIRE IN IT CORRIDOR

KUKATPALLY

bottleneck' is caused to difficult road design sharp curves, reduction carriageway due to ructions like structures rongly parked vehicles badly timed signals

BOTTLENECK AREAS

CHIBOWLI FLYOVER: After ing off the Gachibowli er, road on both sides are row. Many malls and shops have parking spaces & are parked on the road s leads to traffic snarls bus bays on the main leads to traffic snarls

R TOWERS: Road leading Kavuri Hills to Cyber ers is narrow and Metro k adds to the chaos. At 3 es, vehicles tend to take m in a haphazard manner, king the traffic

C CITY STATION ERPASS: The road tremely narrow and

LB NAGAR

HAFEEZPET-KOTHAGUDA: Road has 3 religious places. One is at the beginning of Hafeezpet flyover, while coming from Miyapur side. It obstructs the flow of traffic on roads

Traffic movement at 200-300 mts stretch on DLF (IIIT) jnc is slow & takes 20-30 mins to cross the stretch. The vehicular footprint is so huge that the traffic comes to a trickle.
— Madhav P | TECHIE

Parking on road is a major menace on Ayyappa society to Kothaguda route. Most bus stands encroach on roads too
— Ramanjeet Singh | TECHIE

Vijay Madugula tweets to KTR: Sir, please put this project (4 Radial Roads

Pedestrians worst victims of road crashes

With accidents on rise, India must focus on road safety

Arindam Chaudhuri

MY SPACE

I was watching a movie in the first floor of our house that fateful afternoon of '94 when that call came and changed our lives forever. It was my mother who had called from the ground floor of our house to inform me through her uncontrollable tears that she had just then received a call that my younger brother had died in a road accident.

I rushed down hoping against hope that it was someone else.

My father had done his maximum possible to see to it that we never developed a fascination for motorbikes, which was a sure-shot route to disaster on Indian roads. So the soonest he could, he bought a car for us.

I still remember that day in 1993, after he had bought a fifth-hand 1977 model Toyota, she entered the house, lay down on the bed in a relaxed manner and told my grandmother, "I have put a "kavach" (a shield) around my children today."

Unfortunately, that was not to be.

So, that afternoon, did my brother really let my father down by taking a ride on a two-wheeler from our institute's campus to the highway to have lunch? No. It's India's pathetic road safety that let him down.

We are a country of road killers.

The highest number of road deaths in the world happens in India. While, with only a mere 12 million vehicles, we have about 1,14,000 deaths on Indian roads, with about 250 million plus cars in the USA, they have only 41,000 road accident fatalities per year.

That is, in India for every 100 cars we have one road death; in USA, there's one road death for every 5,000 cars! And this despite

daily normal alcohol consumption per capita being far higher in the West, especially among the youth, and average speed limits in developed nations being far higher than those in India.

A country like USA decided to make a target of reducing road deaths by 20 per cent in ten years; for UK, the target taken was 40 per cent; Austria took 50 per cent; and even a country like Malaysia took a target of bringing road deaths down to less than 3 per 10,000 vehicles! A country like Sweden implemented something called Vision Zero in 1997, with an ultimate aim to bring down road accident deaths/severe injuries to zero! So even this is possible.

What about India's targets? Well, what's that? UN's global forecast shows road deaths becoming the third highest cause of premature deaths by the year 2020.

In India, our future development initiatives need to have a focus on better road planning — from keeping roadsides clear of 'crashable' objects (like trees, concrete pillars etc) to having separate lanes for pedestrians and cyclists to planning cities in such a manner where even the usage of vehicles can be restricted by making places of residence, schools, shopping and work closer to each other, wherein people start preferring to walking down. Denmark actually plans to make large portions of its

capital Copenhagen car-free!

Recognising the fact that the maximum number of road deaths are caused by young individuals in their first year of driving, many countries have rules preventing youths from driving alone during the first year of driving/driving from 10pm to 5am/driving with any trace of alcohol — things we must adopt in India as well. It's a shame that we haven't been able to even make it compulsory for women to wear helmets.

Yes, parents do have a role to play. When my dad bought me my first car, he explained to me endlessly that a car was like having a killing machine in your hands. I used to be rash once upon a time, and my

brother the safe driver who my father would always praise.

One day, perhaps out of slight jealousy at that comparison, I had asked my father, what if I were driving safely but someone jumped in front of my car? Then there would be an accident, wouldn't there be? He had calmly replied, "A car is a killing machine. If your speed limit is right, you will even save that person from committing suicide." I haven't forgotten that one lesson till this day.

(The writer is a management guru and hony director of IIPM Think Tank.
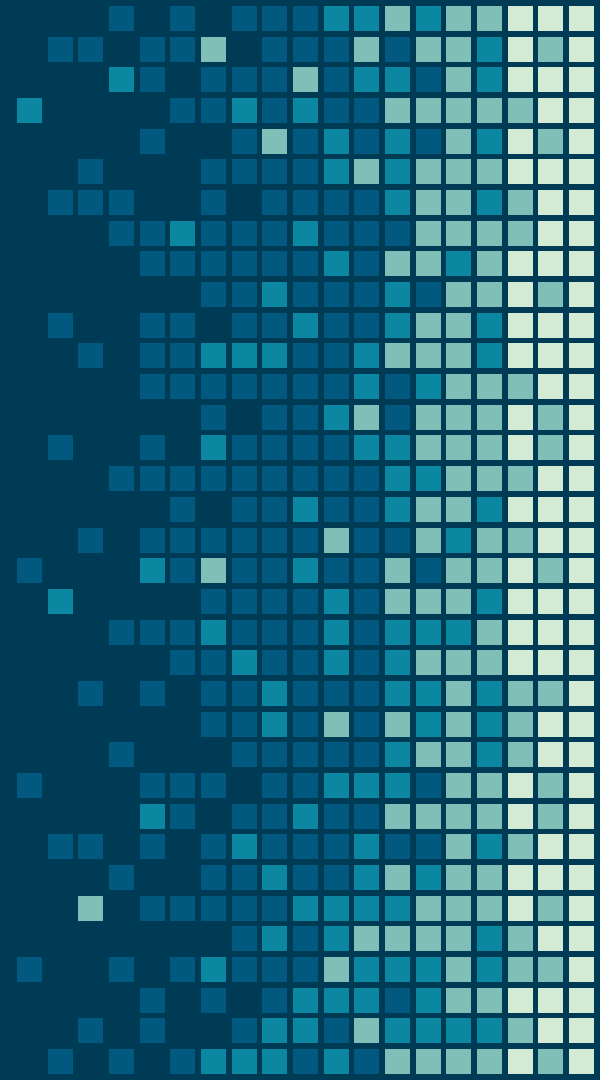The views expressed in this column belong to the writer and do not reflect those of this newspaper)
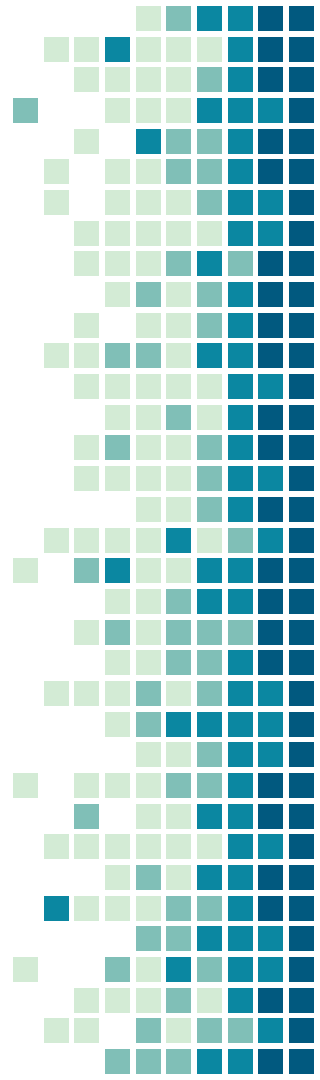
The Solution

ROAD MISHAPS FORECASTING ⚠ 🚗
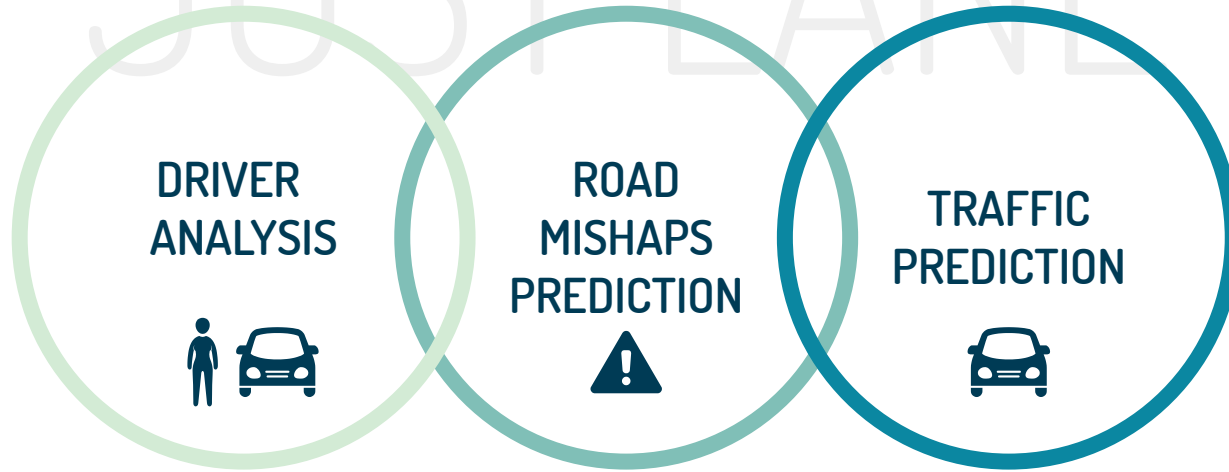
- Traffic prediction (vehicle traffic and pedestrian traffic) and probable accident prone zones using the alert types.

- Recursive occurrence of an alert at a particular location and time could imply some possible troubles based on the alert type.
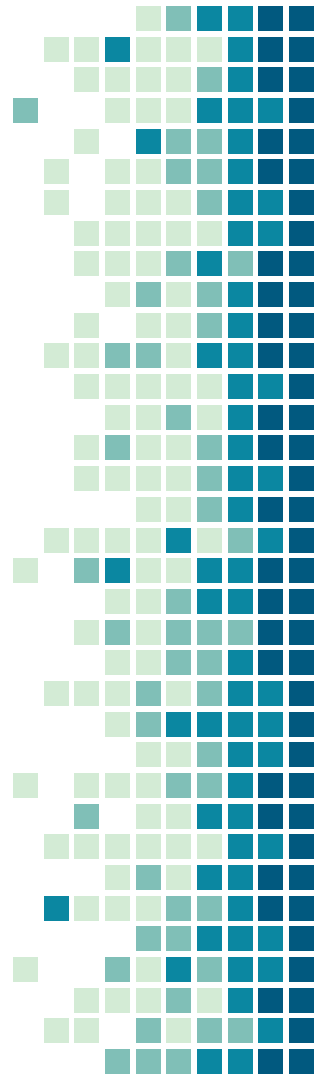
DRIVER ANALYSIS

- Useful for tracking driving pattern for a specific vehicle id.

- On entering vehicle id the frequency of each alarm type along with the average speed of each vehicle is obtained.

- Necessary action can be taken by fleet manager to monitor the driver behaviour.

Innovation Quotient

- Extensive literature survey revealed that substantial exploration has not been carried out on telematics data and its potential to envisage traffic analysis.

- Present analysis involve
  - Route prediction
  - Air pollution analysis
  - Video and camera based surveillance systems

- None of the studies and analysis focused on the pressing problem
  - Traffic congestion prediction using fleet alerts.
  - Geographical disturbances' prediction for a better and safe journey.
  - Driver analysis

In conclusion, we have presented a new angle of using telematics data and putting it into action. Our application of telematics data is not yet fully established in the research and analysis carried out till date.

Implementation

Predict Traffic

Predict for your current location and time.

[Predict]

Predict for your current location.

Time (Hour)

| Enter Time.. |

[Predict]

Predict with latitude and longitude.

Time (Hour)

| 11 |

Latitude

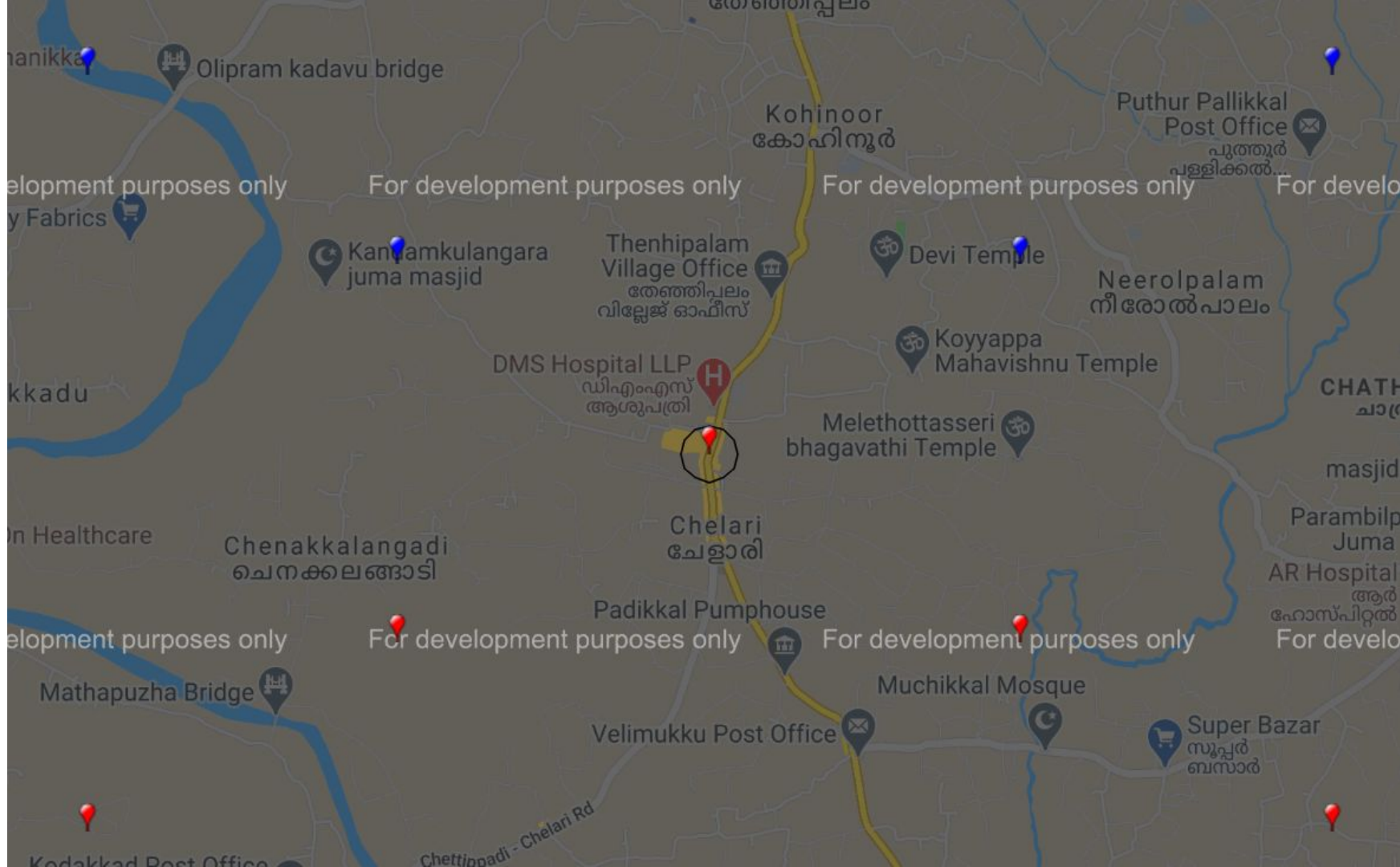| 8.180948257446289 |

Longitude

| 77.41692352294922 |

[Predict]

Predicted Value: HMW - A lot of traffic here!

Choose an Alternative Route!

[Show on Map]

Color Codes for the Map

- Traffic in the Area : Blue
- Imminent Collision Ahead: Red
- Pedestrians in the Area: Green
- Accident Prone Zone: Brown

- The traffic prediction model has been developed with the K Nearest Neighbours algorithm which yielded an accuracy of 57%.

- Flask has been used to deploy the prediction model.

- HTML and CSS has been used for the front end.

- The python wrapper pygmaps and the library geocoder are used to display the maps.

- The driver analysis has a simple user friendly interface developed with tkinter.
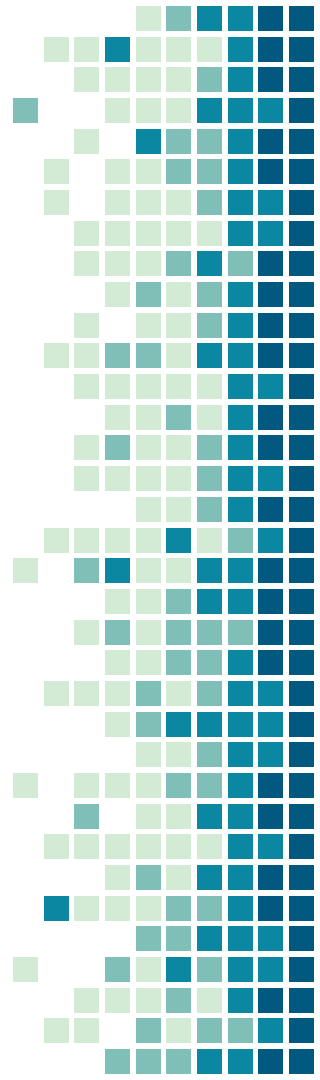
Vehicle Analysis

Enter vehicle id:

19317455059550208687

Submit

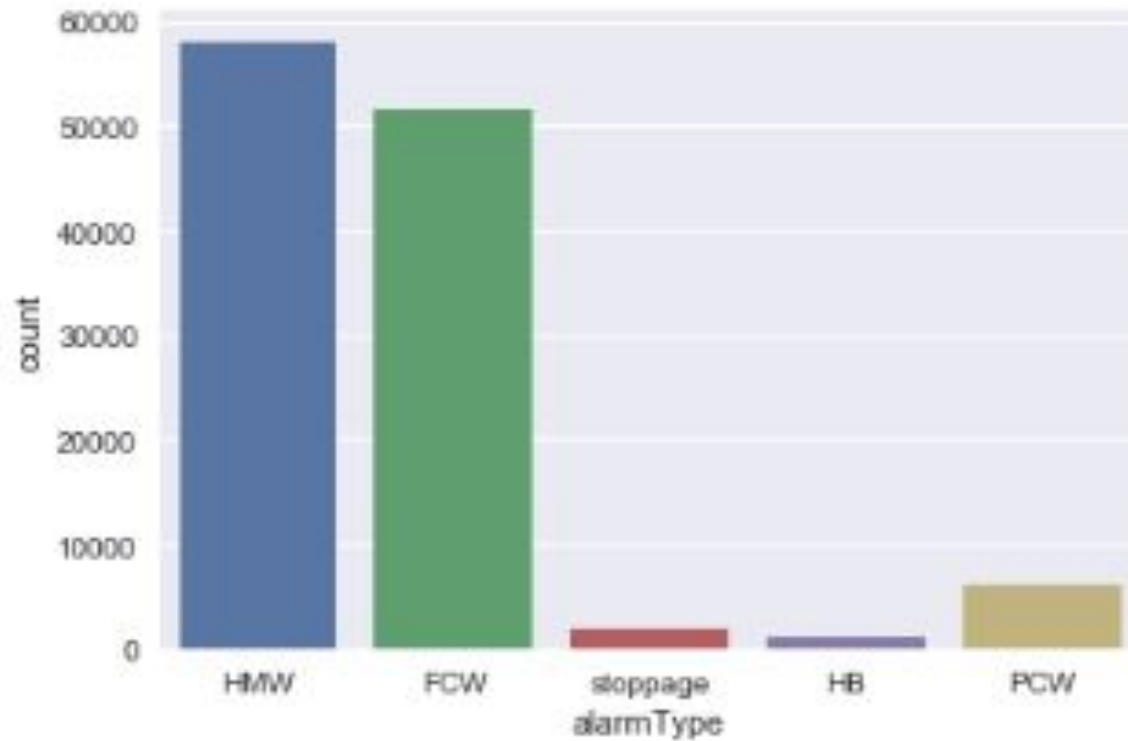Max occuring alert:

FCW 1456

Average Speed:

49.5

Alert summary:

{'FCW': 1456, 'HB': 66, 'HMW': 640, 'PCW': 1, 'stoppage': 484}

Future Enhancements

- Current distribution of alarms.

- Improving the dataset with addition of more data in order to achieve higher accuracy.

- Live telematics (if available) can be a great addition to the current data apart from providing live updates.

- Prediction of accident prone zones can be much more effective with incorporation of accident data.
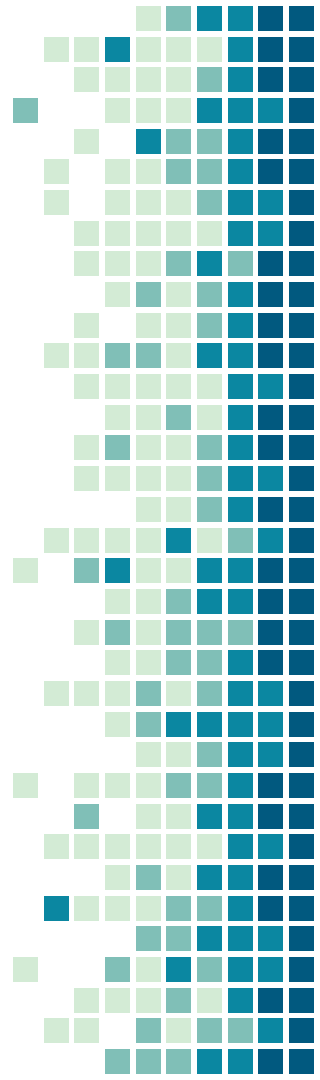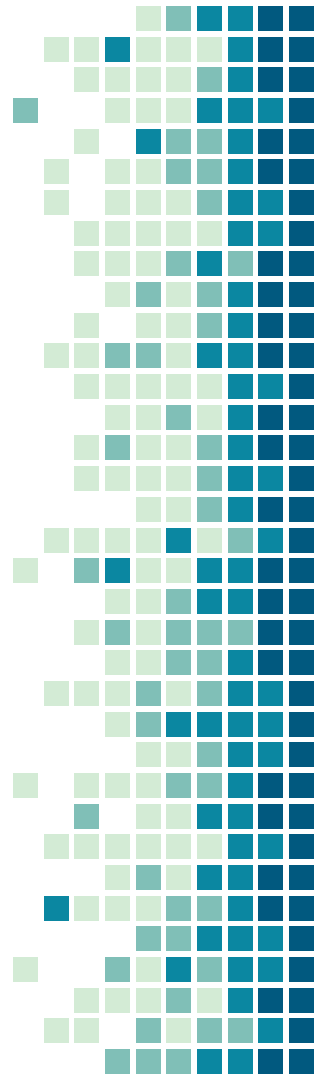
The Team

Anjana V Murthy

Ganugapati Sree Pranavi

Harshitha Batta

Thank You