IMPORTANCE AND NEED OF ADJUSTABLE ROAD SIDE SHADE ON TRAFFIC SIGNALS

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Abstract: India is a country with diverse climate. Few regions in India faces harsh Sun during summer with temperature rise up to 48 degrees. Standing and waiting for traffic signals becomes uncomfortable and sometimes deadly. Standing in traffic signals in crippling heat is an ordeal for Motorists. This forces many motorists to jump traffic signals to avoid harsh sunlight. The solution to this is providing green net or Tarpaulin covers near the signals. This not only helps the motorists to get shaded place but also helps in escaping for Rains. This further helps the people to adhere to traffic rules. The temporary Tarpaulin cover does not last for longer time as it is not useful in Rains. There is a major need of a solution which can help the people to stop crossing Traffic signals and adhere to traffic rules in summers.

The problem becomes harsh when standing is harsh Sun of summer leads to Fainting and sometimes heat strokes as well. The paper talks about need and importance of road side shades in traffic signals and providing solution for the same. This will reduce breaking of traffic signals and prevents health issues while standing in traffic signals. This will help authorities to think further for the issues related with Heat in summers especially on traffic signals. The paper gives a design solution to the problem associated with harsh summer heat and rains. The design solution will include consideration of the other aspects of Shade design as well.

Keyword: Traffic Signal, Summer Heat, Road Side Shade

Introduction: India is a country with diverse climate. The Climate of India has a wide range of weather conditions across a vast geographic scale and varied topography. Few regions in India faces harsh Sun during summer with temperature rise up to 50 degrees. The months of May and June are usually the hottest in India. While, in some areas, the temperature rises as high as 50 degrees Celsius, there are many regions that experience moderate summers.

This leads to various heat related issues where one lives, some summer diseases are inevitable.
However, as wisely quoted by a learned man, “prevention is better than cure.”
Problems related with harsh summer heat are majorly Heat stroke, vomiting, sun burn and fainting.

Fig. 1 shows the temperature of India in the month of MAY. This shows temperature as high as 47degrees in summer. The heat wave give a lot of summer deaths due to harsh Sun. Exposure to the sun for longer durations is not healthy for humans or animals due to penetration of UV rays in the body. People prefer to stay at home to prevent themselves from harsh sun rays. Sometimes they try to break traffic signals to avoid harsh Sun rays. Fig 2 and Fig 3 pictures showing people try to take shade to prevent from Harsh Sun.

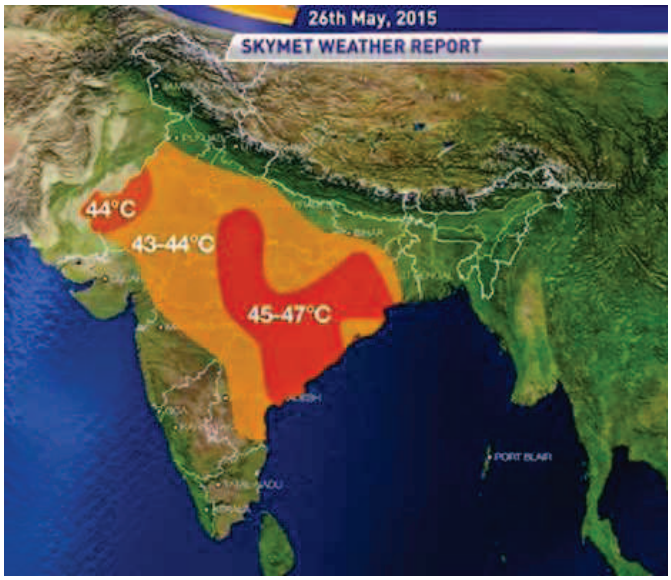

Fig 1

Fig 2

Fig 3

Standing and waiting for traffic signals becomes uncomfortable and sometimes deadly. Standing in traffic signals in crippling heat is an ordeal for Motorists. Cutting signals is a rampant problem across India. People try to take shade under trees near the traffic signals or cover themselves with cloth. The problem of cutting signal become worse when there is no tree near the signals to take shade in summers.

Red Light-Jumping Cause Most Road Accidents: Police

- Four people were killed every day in the national capital this year, police said, and in most cases motorists jump the red lights, leading to fatal road accidents,
- Authorities of India taking these issue serious and preventive measures are taken by them to deal the signal breaking issue during summer.
- To Beat The Heat & Help Bikers, This Andhra Town Has Installed Green Canopies For The Commuters. Andhra Pradesh experience harsh summer every year. The hot wind is giving people a tough time, especially when they have to go out during day time on their two-wheelers. The town has installed canopies at every road, major junctions and traffic points, where the two wheeler get halted, to help the riders. The novel idea was implemented by the Kurnool Municipal Corporation and based on the positive response.

Fig 4

Fig 5

Fig 4. Showing Kurnool city with green cover. While it is innovative and effective, Kurnool isn't the first city to give a green cover to two wheeler passengers. It is initiated by many states in India as well.

Nagpur in Maharashtra faces hottest summer with temperature up to 48 degrees. In 2016, Nagpur had it in place at major traffic points. According to reports, the additional benefit of the green shades was that the people stopped jumping signals and started following traffic rules! A lot of people online have also observed that the shades seem to be serving another purpose – ensuring motorists don't break the sign .Fig. 5 shows The tarp covers seem to be providing drivers with another reason to obey the law – if only for a few more seconds of shade.

The heat wave in Nagpur has reportedly claimed its first victim, so here's to hoping this move brings some respite to the commuters. This solution has done wonders for the local authorities. It not just provides respite from the grueling summer heat for motorists, but it has also ensured that people adhere to traffic rules. Commuters choose to wait all the way till the light turns green, which is unusual because people all over the country are known to be impatient at traffic signals.
There is strong need of the permanent solution to tackle this problem of signal breaking.

Automated Road Side Shade Design Near Traffic Signals: The temporary Tarpaulin cover does not last for longer time as it is not useful in Rains. There is a major need of a solution which can help the people to stop crossing Traffic signals and adhere to traffic rules in summers. This will reduce breaking of traffic signals and prevents health issues while standing in traffic signals.

Design of shade: Automatic shade on signals which operates on solar energy and covers the road area up to 9 m. makes the signal break more smoothing and comfortable for user group. The operation is based on solar system which makes it sustainable at the same time.

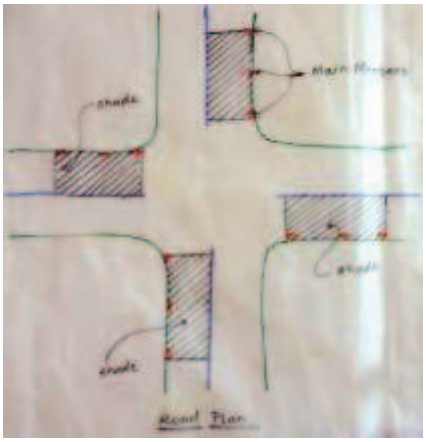

Fig 6

Fig 7

Concept development starts with initial lining of area to be covered under shed near traffic signals. The shed can work under all types of roads more than 9m. Fig 6 and fig 7 are Conceptual sketches showing shade over traffic signal . The operation is mechanically operated controlled by cable. This gives the flexibility in design. It is fixed at one end and and other end is kept flexible. The solar panels and sensors help to release and folding the plates back in position. Fig 8,9,10,11 illustrates view showing adjustable shade design.

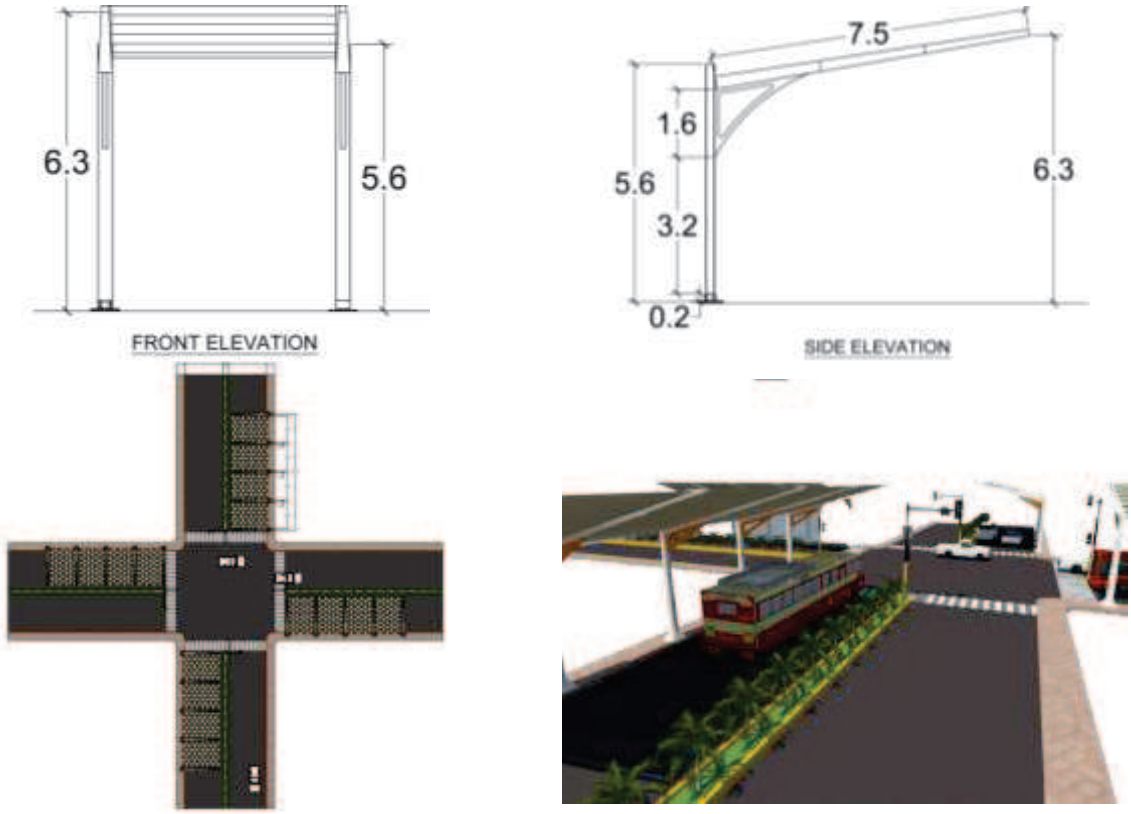

Fig 8,9,10,11

Material: The material can be of tensile fabric where solar panels can not be used. A commercial tension fabric shade canopy has upper steel framing that shapes cable-tensioned HDPE shade fabric into various roof styles . These fabric canopies are permanent shade structures .They can stand-alone or attach to other robust structures.

Various Controll System:

- **For Cable Control :** Cable controlled shade is developed to provide shaded area for the user in sunny days. It is mechanically operated so that it can be used for required time period.
- **Mechanically Operated :** It is fixed at one end and another is mechanically operated; during the sunny days with the help of solar sensors the plates are released and during the night time is folded back to the straight position.
- **Hydrollic Control :** In this system hydraulic Chanel's are used which is manually operated, during sunny days it can be operated.
- **Channel Control :** With reference to kitchen trolley; This system is incorporated in shading device for signal square. It's one end is fixed and other is operated on electricity.

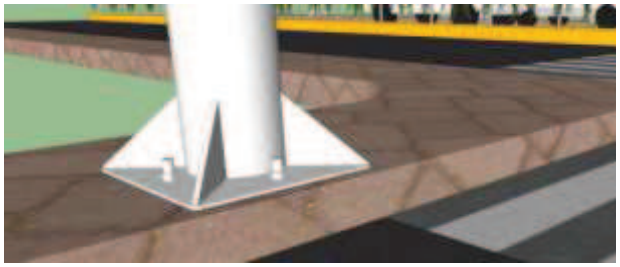

Fig 12

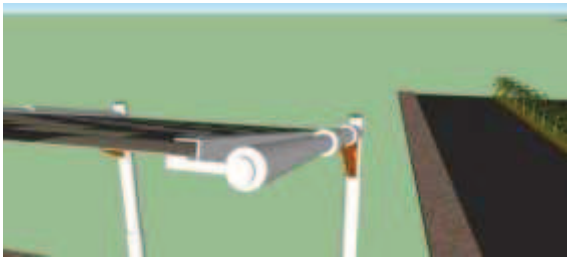

Fig 13

Fig 12 and 13 shows the joinery in M.S sections. They are durable and easy to install .The flexibility in easy installation and durability gives the possibilities of the roadside shed a better solution. The design can be modified further as per needs of road size and traffic movements.Thus, the road side shed is a better solution to high heat of summer Sun.

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