“TRAFFIC ANALYSIS AND SIGNAL DESIGN AT PATAN”

A PROJECT REPORT
NAME OF THE CANDIDATES

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INTERNAL GUIDE
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INTRODUCTION

- Siddhpur cross road is surrounded by a petrol pump, M.K Education campus, Tirupati bazaar due to which there is a heavy traffic around cross road. More over there is also a mini bus-stand & private vehicle parking due to which there is a heavy movement of people so, conjunction of people and traffic are causes big chance of accidents.

- Therefore at that place Traffic Signal must be required. So, as per requirement of traffic at different places, we have visited different intersection in Patan and decided that the traffic signal is required at navajivan intersection Patan. So we have done this project by manual method and provide a working model of the signal at intersection.
INTRODUCTION OF PROJECT AT PATAN

LITRETURE REVIEW

METHODS OF TRAFFIC VOLUME COUNT

MANUAL METHOD

MECHANICAL METHOD

VOLUME COUNT AT INTERSECTION (ANALYSIS)

NON PCU SHEETS

PCU SHEETS

DESIGN CALCULATION OF SIGNAL

WORKING MODEL
Methods for Traffic Volume Count


2. Combination of manual and mechanical methods.

3. Automatic devices.

4. Video Photographic

5. Moving observer methods.

6. Photographic methods.
Manual Methods

The field data sheet can be prepared to the particular requirement at any intersection. At a four arm intersection the count at each arm of the traffic entering the intersection can be broken down into three categories, via left turning, right turning, straight ahead traffic. Then take a reading in a data sheet.

- **Equipment needed**
  - A watch
  - Pencils, eraser and pencil sharpener
  - Supply of blank field data sheets
  - Clip board
  - Additional equipment which is very handy is the multibank hand tally counter.
  - If five types of vehicles are to be counted the hand tally should have five counters, with a label stuck on each pressing knob indicating the vehicle type it signifies.
  - The pressing of the knob operates the counter and records the vehicle.
  - The numbers indicated on the counters are periodically transferred to the forms.
**Passenger Car Unit (PCU) Table**

- It is usual to express capacity in term of “Passenger Car Unit”, This system is also being followed in India, The basic consideration behind this practice is that different types of vehicles offer different degrees of interference to offer traffic and it is necessary to bring all types to a common unit, The common unit adopted is the passenger car unit,

<table>
<thead>
<tr>
<th>Types of vehicles</th>
<th>PCU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passenger car</td>
<td>1.0</td>
</tr>
<tr>
<td>Auto Rickshaw</td>
<td>1.0</td>
</tr>
<tr>
<td>Bus, truck</td>
<td>3.0</td>
</tr>
<tr>
<td>Tractor-trailer unit</td>
<td>3.0</td>
</tr>
<tr>
<td>Motor cycle, scooter, pedal cycle</td>
<td>0.5</td>
</tr>
<tr>
<td>Horse drawn vehicles</td>
<td>4.0</td>
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<tr>
<td>Bullock cart</td>
<td>6.0</td>
</tr>
</tbody>
</table>
DATA SHEET FOR INTERSECTION VOLUME COUNT

Date:  
Time:  
Flow from:  

<table>
<thead>
<tr>
<th>Sr No.</th>
<th>Time</th>
<th>Type Of Vehicle</th>
<th>No of Vehicle</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Left Turn</td>
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<td></td>
<td></td>
<td></td>
<td>Straight</td>
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<td></td>
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<td>Right Turn</td>
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</tbody>
</table>
# Classified Volume Count at Intersection

**Location:** Navajivan Char Rasta PATAN  
**Time:** 10:00 To 11:00 AM  
**Approach:**  
**Flow:**

<table>
<thead>
<tr>
<th>Time</th>
<th>Left Turn</th>
<th>Straight</th>
<th>Right Turn</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2W</td>
<td>3W</td>
<td>4W</td>
<td>BUS</td>
<td>TRUCK</td>
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<td>10:00</td>
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<td>11:00</td>
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<tr>
<td>TIME</td>
<td>LEFT TURNER</td>
<td>Pcu</td>
<td>STRAIGHT</td>
<td>Pcu</td>
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<td>4W</td>
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INTRODUCTION OF SIGNAL DESIGN

➢ In India, the traffic lights for vehicles commonly have three main lights, a red light that means stop, a green light that means go and yellow that means ready to go.

➢ The pedestrians, there have only two lights, a red light and a green light that means go and stop respectively.

➢ Besides reducing the number of accidents, it made the traffic flow smoothly and possibly could save people time.
DEFINITION

- **Cycle**: A signal cycle is one complete rotation through all of the indications provided.

- **Cycle length**: Cycle length is the time in seconds that it takes a signal to complete one full cycle of indications.

- **Interval**: Thus it indicates the change from one stage to another. There are two types of intervals - change interval and clearance interval.
Phase design

• The signal design procedure involves six major steps.

• (1) phase design
• (2) determination of amber time and clearance time
• (3) determination of cycle length
• (4) apportioning of green time,
• (5) pedestrian crossing requirements
• (6) the performance evaluation of the above design.
Object of phase design

- The objective is to design phases with minimum conflicts or with less severe conflicts.
Type of Phase Design

• Main two type of phase design:

• (1) Two phase signals

• (2) Four phase signals
Two Phase Signals

- Two phase system is usually adopted if through traffic is significant compared to the turning movements.
Four Phase Signals

- This type of phase plan is ideally suited in urban areas where the turning movements are comparable with through movements and when through traffic and turning traffic need to share same lane. This phase plan could be very inefficient when turning movements are relatively low.
Signal Design Diagram

Cycle diagram for Patan - Siddhpur approach

[Diagram showing cycle times: 17 seconds, 3 seconds, 21 seconds, 2 seconds]

Cycle diagram for Deesa - Chanasma Approach

[Diagram showing cycle times: 21 seconds, 2 seconds, 3 seconds, Int. green]
Our project completed with working model by using manual method or Advance Technic By Using a Sensor.
Material use in project model

- Ply wood sheet: 75cm * 75cm * 10cm
- PVC pipes
- Push switch sensor
- Soil paper
- Radium
- Resistor
- Diode
- LED
Flow chart of the algorithm for traffic violation detection
CONCLUSION

➢ We have used sensor in signal design which is economic compare to other methods.

➢ Traffic characteristics of the road can be improved.

➢ By doing the above measures accident rates can be decreased.

➢ Hence, the death mortality rate can be reduced and driving would be safe on road.
Thank you