Pedestrian Gap Acceptance Behaviour at Uncontrolled Intersections for an Urban Corridor Vijayawada City

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Abstract. The substantial increase in number of vehicles leads to tremendous rise of traffic volume and also the traffic congestion on roads. Almost every city in India is facing the traffic problems. These traffic problems leads to the loss of manpower and also increase of fuel consumption. Critical gap and lag are less the developed countries which confirms the ore risky behaviour of drivers in developing countries like India .critical gap is the most important parameter associated with gap acceptance study especially in case of delay and capacity estimation.

Uncontrolled intersections in the developed countries are controlled by traffic signals like vehicle signals , pedestrian signal etc, but in vijayawada no one traffic signals and yield signs. It creates more problems and also leads to delay of traffic. This paper systematically analyse the behaviour of pedestrian at uncontrolled intersections.

Keywords : Delay, Yield signs, Congestion, Uncontrolled intersection, Pedestrian gap.

INTRODUCTION

Walking is the main mode to travel in small distances and heavily traffic congested areas. Mostly roads have been an obstacle to pedestrian movement by full flow of traffic walking is the main mode which connects different public transportation systems and near by commercial areas and near by areas etc .pedestrian are mostly effected due to motor vehicles and conflicts in road crossing . traffic accidents involves pedestrian are major safety problem. The major interest about these studies are traffic accidents, pedestrian delays.

Street crossing is a major problem whose analysis on how humans value their time and their lives, how their behaviour during crossing the roads.

LITERATURE REVIEW:

Amran, Rafe and kertz studied gap acceptance of pedestrians decisions and behaviour about the acceptance or rejection of gap at waiting times, related to gender, using mobiles and child accompaniment to be extremely effective at unsignalized intersections

Amin Mirza Boroujerdian, Morteza Nemati are achieved results the change of vehicle speed , pedestrian distance to vehicle lane , pedestrian speed vehicle location and length of the gap affecting the pedestrian gap acceptance

3.Basil David Daniel finds that accepted gap of pedestrians not only influenced traffic conditions but also the environment affect of road. It also find that crossing behaviour of pedestrians are related with speed of vehicles.

4. Brewer et al found that pedestrians does not wait to cross the road always until the roads are clear. Instead of waiting they use rolling gap to cross the roads.

METHODOLOGY:

Field survey was carried on 20-september-2018 in vijayawada urban corridor . A considerable vehicles volume is taken at peak hours. In this paper crossing behaviour of pedestrians are manually calculated in actual traffic conditions.

Data collections includes number of attempts for crossing, type of vehicles, the accepted or rejected gap of pedestrians, waiting time, vehicles speed , crossing direction , pedestrians characteristics like gender and age. The main aim of this paper is to determine the required minimum gap with effect of mentioned characteristics. it is important to note that crossing of pedestrians during high traffic conditions the pedestrian choose rolling gap or not and cross the road with speed changes were recorded manually.

FIGURE1: ROAD STRECH

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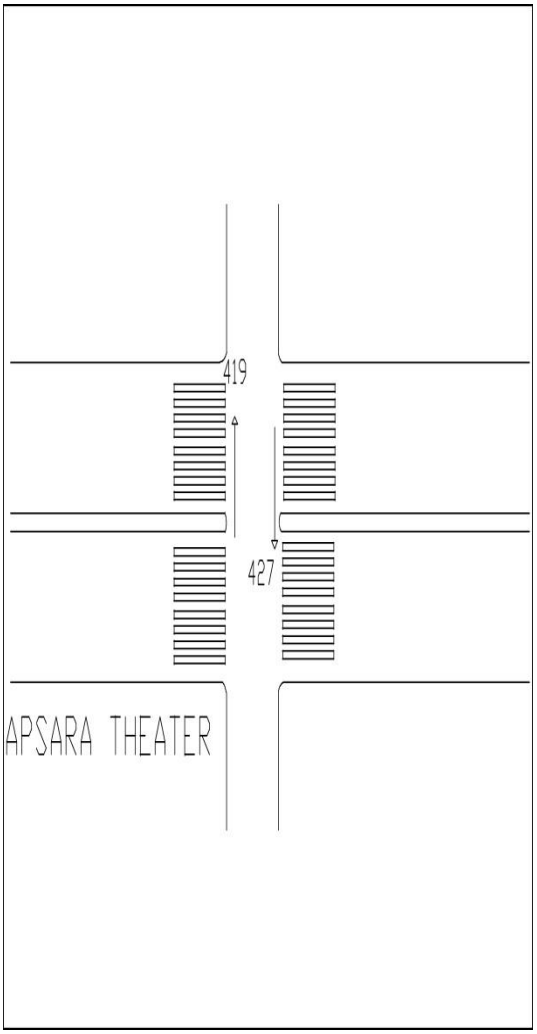

FIGURE 2: APSARA JUNCTION

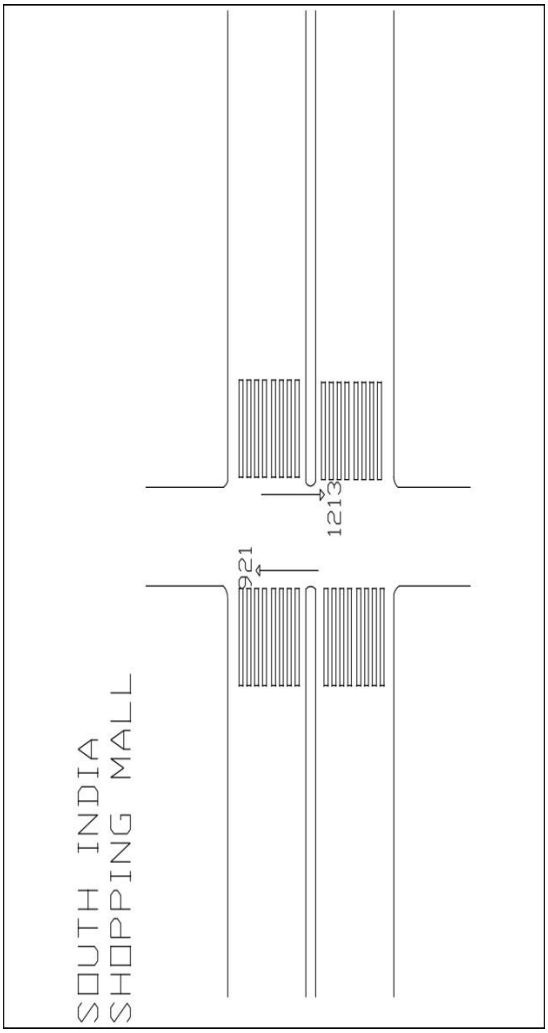

FIGURE 3:SOUTH INDIA SHOPPING MALL

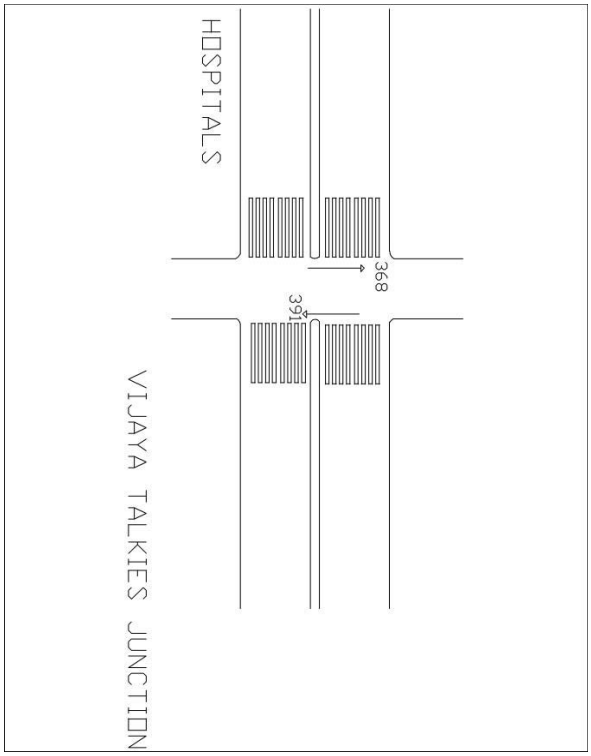

FIGURE4: VIJAYA TALKIES JUNCTION

APSARA THEATRE JUNCTION:

Apsara theatre junction consists of theatre Because this junction consisting theatre, as 5:30 PM is the matinee show ending time and 6:15 PM is the starting of next show We conducted traffic count survey at the junction throughout a week Finally from survey we conclude peak hour at this junction is 5:30 PM - 6:30 PM

Pedestrian count at the junction towards theatre is 427 Pedestrian count at the junction to away from theatre

SOUTH INDIA SOPPING MALL JUNCTION:

Peak hour at this junction is 5:45 PM-6:45 PM South India shopping mall junction consists of shopping complex and commercials Due to consisting shopping complex and commercials pedestrian traffic is more in evenings and weekends We conducted traffic count survey at the junction throughout a week Finally from survey we conclude peak hour at this junction is 5:45 PM - 6:45 PM

Pedestrian count at the junction towards south India shopping mall is 921 Pedestrian count at the junction towards besant road is 1213

VIJAYA TALKIES JUNCTION:

Vijaya talkies junction consists of hospitals and educational institutions (coaching centres) Due to consisting of hospitals, educational institutions pedestrian traffic is more in particular time. We conducted traffic count survey at the junction throughout a week Finally from survey we conclude peak hour at this junction is 5:00 PM - 6:00 PM

Pedestrian count at the junction towards east direction is 368 Pedestrian count at the junction towards west direction is 391

PEDESTRIAN COUNT AT DIFFERENT JUNCTIONS IN PEAK TIME & RESULTS

junction	Peak time	optimistic	Pessimistic
Swarna junction	**5.30-6.30 (PM)**	**315**	**421**
Apsara junction	**5.30-6.30 (PM)**	**321**	**427**
S.India mall	**5.45-6.45 (PM)**	**658**	**1213**
Vijaya talkies	**5.00-6.00 (PM)**	**264**	**391**

PEDESTRIAN CHARACTERISTICS AT THE JUNCTIONS:

1. Commercials on the main road have full flow of vehicle cause traffic problems left turn movement into driveways which is two close to the junction are contribute to collisions

2. Uncontrolled intersections of Zebra crossings are to provide high visible markings, traffic signs are established near the intersections.

3. Marked intersections are heavily used by the educated while others are very minimum.

4. Collecting fines for parking in NO PARKING zones.

CONCLUSION:

Pedestrian age is found to be more effective when compare with the gender on gap acceptance.

Installation of pedestrian signals at the junctions.

Laying of foot over bridges at the junction

Proper orientation(colour, size)of zebra crossing at every junction.

Providing pedestrians elevated

round- abouts .

Laying of speed breakers at the junction especially near to the zebra crossings.

Providing proper pedestrian and regulations.

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