

## INTRODUCTION

Nowadays, we see the problems occurring because of traffic has drastically increased, as more and more private vehicles are owned by the people. After implementation of this system breaking of traffic rules, long lane traffic jams etc. can be reduced. It can be applied at almost every place, where controlling of traffic is not easy task. This system has been working in Japan's kyosan district. In this system there is sensor which is located before the traffic signal which counts the number of cars and the lane in which highest number of cars counted had been allowed to go first. Hence with the help of this system long lane traffic jams can be reduced.

### **(a.) What is Design Thinking? Your Understanding:**

Design thinking is a method for practical, creative resolution of problems. It is a form of solution-based thinking with the intent of producing a constructive future result. To design a solution for a particular query by discussing and thinking together is called as design thinking. By thinking together with your friends and relatives get you more space to think about so it is major part to find some solution about anything.

### **(b.) Its Importance, Socio-economical relevance:**

Traffic control is a major problem for our world nowadays so finding some solution by communicating people affecting by traffic effects like air pollution, noise pollution & emergency rescue problems.

**(c.) Learning tools & its importance:**

We had observed the traffic problems by going to some cross roads and local roads who have traffic problems. Importance of this activity is to empathies students about problems affecting our nature and to build there thinking power about problem solution.

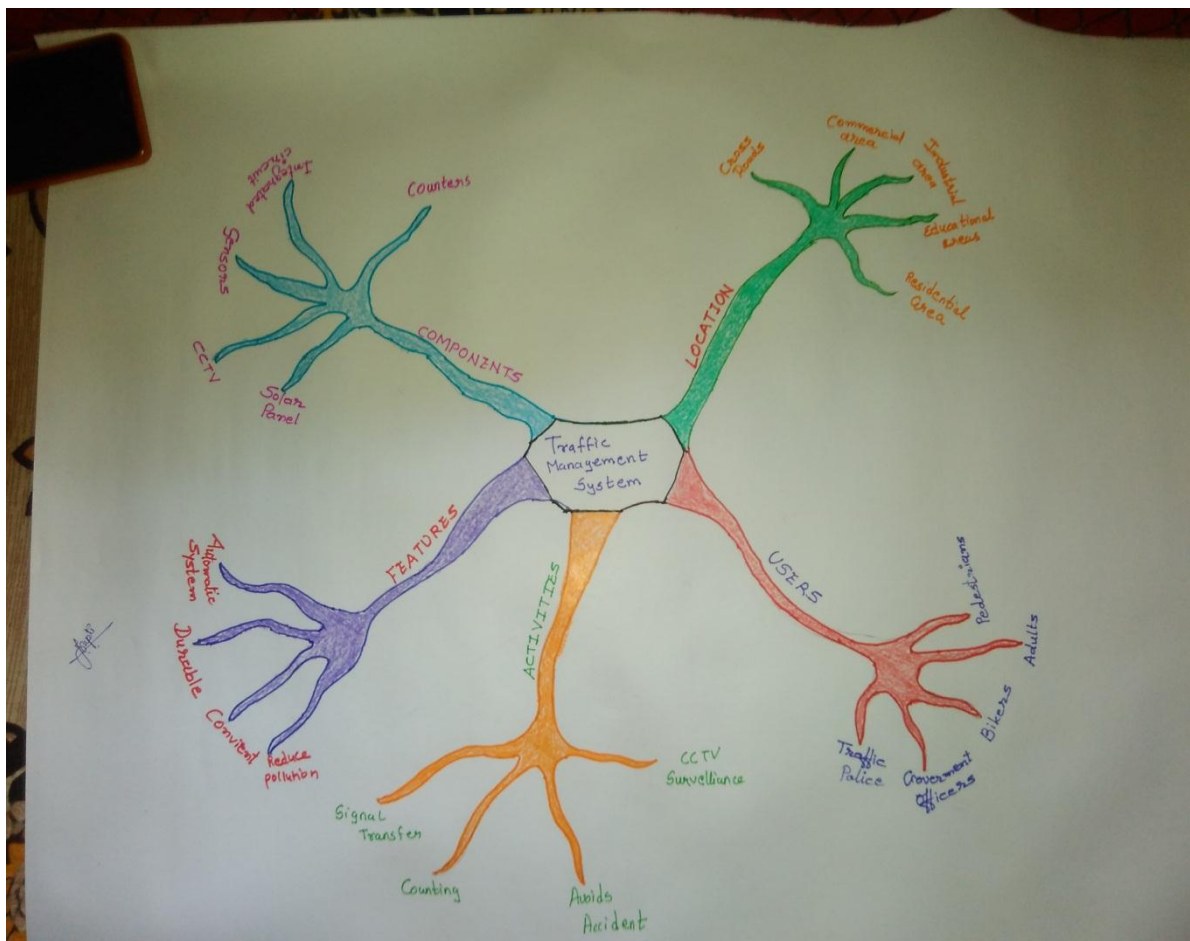
**(d.) Teambuilding and log book exercises and importance:**

Building team is a very important thing to do which is smoothly handled by our faculty guide Mrs. Trupti. As per regular activities we have update our logbook by instruction given by our faculty guide.

## 2. EMPATHY MAPPING

- MIND – MAPPING TECHNIQUES

It is the overview of our project. It is a graphical representation of ideas and aspects around a central theme. In mind mapping we have conclude the ideas of our team members to get more idea about the project.

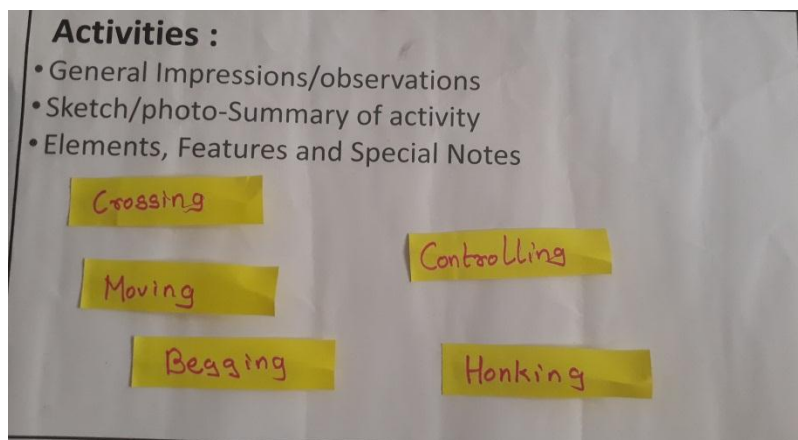


## • AEIOU SUMMARY

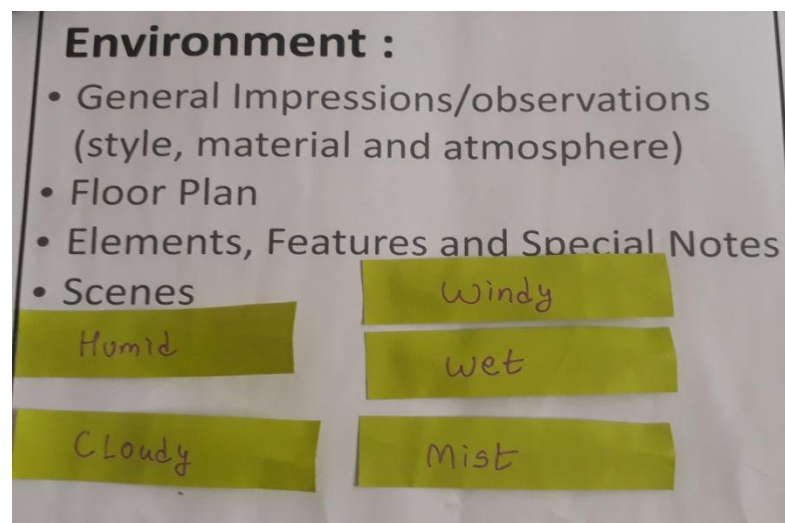
In this canvas we have to observe various interactions going at that place, various activities & objects and the users using it.

The AEIOU has following five parts:

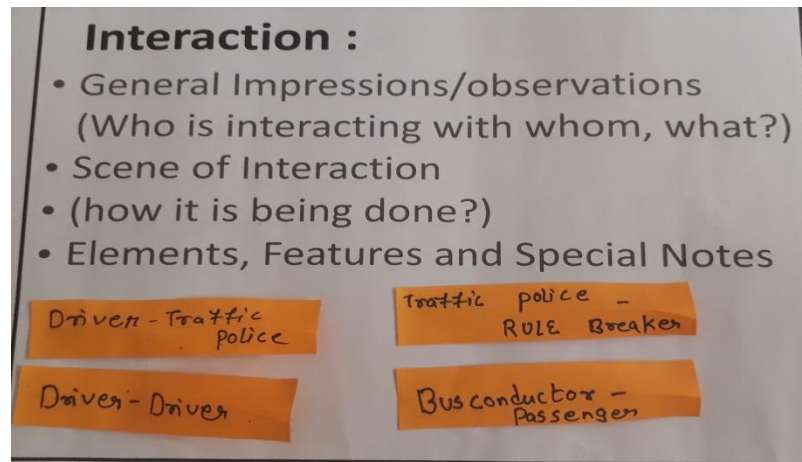
1. ACTIVITIES: We had observed activities like Controlling, Moving, begging, crossing , honking at the crossing roads.



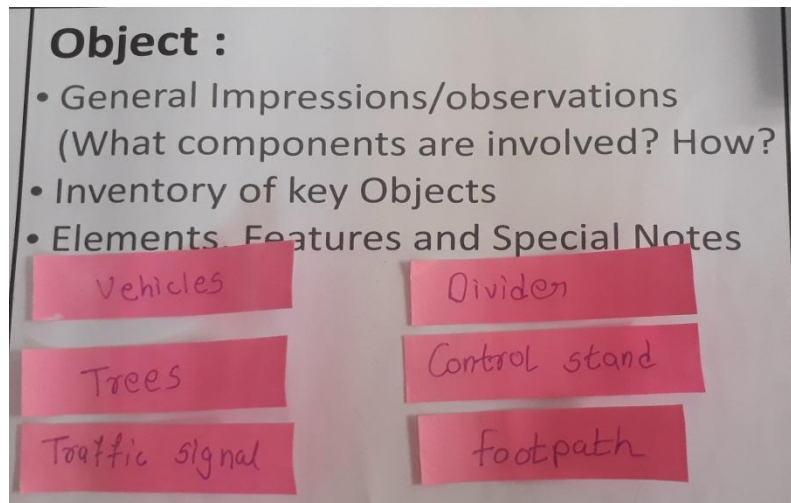
2. ENVIRONMENT: The 4-crossing roads are mostly very polluted as more number of vehicles are there. Also there is different kind of environment such as windy, cloud, wet, mist, humid.



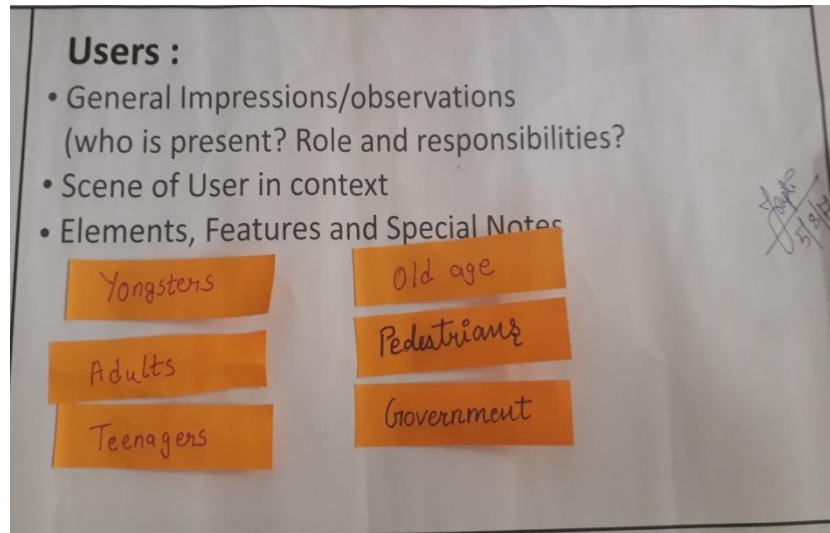
3. INTERACTION: We had seen many interaction going at that particular place such as interaction between Driver and Traffic police, Traffic police with Rule breaker, Passenger with Bus conductor etc.



4. OBJECTS: As the location is crossing road the object we had noted down were vehicles, trees, control stand, footpath, trafficsignal etc.



5. USERS: The users are persons who uses the system, and follow all the rules and regulation published by the government. We had observed users such as youngsters, old age people, adults, pedestrians, government etc.



# AEIOU CANVAS

SAL TECHNICAL CAMPUS															
<b>AEIOU Summary :</b> It will help to improve traffic management. It will help traffic police to handle traffic with ease. It will solve long lane traffic.		<b>Group ID:</b> 6092 <b>Domain Name :</b> Traffic management System	<b>Date :</b> 5 - August - 2017 <b>Version :</b> 1												
<b>Environment :</b> <ul style="list-style-type: none"> <li>General Impressions/observations (style, material and atmosphere)</li> <li>Floor Plan</li> <li>Elements, Features and Special Notes</li> <li>Scenes               <table border="0"> <tr> <td>Humid</td> <td>Windy</td> </tr> <tr> <td>Cloudy</td> <td>Wet</td> </tr> <tr> <td></td> <td>Mist</td> </tr> </table> </li> </ul>		Humid	Windy	Cloudy	Wet		Mist	<b>Interaction :</b> <ul style="list-style-type: none"> <li>General Impressions/observations (Who is interacting with whom, what?)</li> <li>Scene of Interaction</li> <li>(how it is being done?)</li> <li>Elements, Features and Special Notes               <table border="0"> <tr> <td>Driven - Traffic Police</td> <td>Traffic police - Role Breaker</td> </tr> <tr> <td>Driven - Driven</td> <td>Bus conductor - Passengers</td> </tr> </table> </li> </ul>		Driven - Traffic Police	Traffic police - Role Breaker	Driven - Driven	Bus conductor - Passengers		
Humid	Windy														
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<b>Activities :</b> <ul style="list-style-type: none"> <li>General Impressions/observations</li> <li>Sketch/photo-Summary of activity</li> <li>Elements, Features and Special Notes               <table border="0"> <tr> <td>Crossing</td> <td>Controlling</td> </tr> <tr> <td>Moving</td> <td></td> </tr> <tr> <td>Begging</td> <td>Honking</td> </tr> </table> </li> </ul>		Crossing	Controlling	Moving		Begging	Honking	<b>Users :</b> <ul style="list-style-type: none"> <li>General Impressions/observations (who is present? Role and responsibilities?)</li> <li>Scene of User in context</li> <li>Elements, Features and Special Notes               <table border="0"> <tr> <td>Youngsters</td> <td>Old age</td> </tr> <tr> <td>Adults</td> <td>Pedestrians</td> </tr> <tr> <td>Teenagers</td> <td>Government</td> </tr> </table> </li> </ul>		Youngsters	Old age	Adults	Pedestrians	Teenagers	Government
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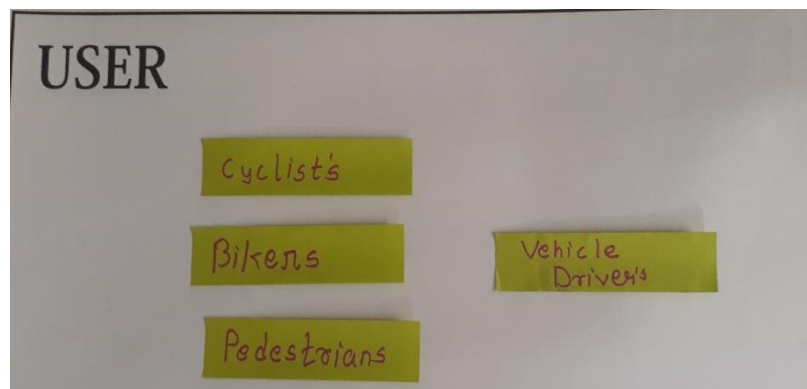


- EMPATHY MAPPING

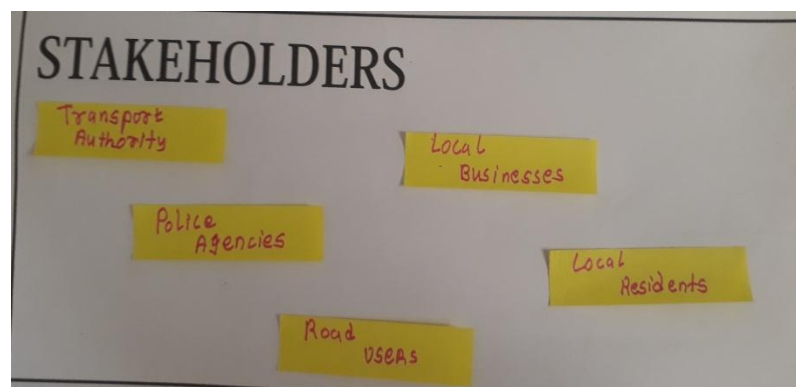
Empathy Canvas is about story-boarding, Users, Stakeholders and Activities. In this canvas we will discover & learn the emotional aspects of our user. In this canvas we noted down the various experience of the people who are stuck in the traffic.

It consists of following parts:

1. USERS: We had noted down various users who uses the system. Users like cyclist bikers, pedestrians, vehicle driver etc.

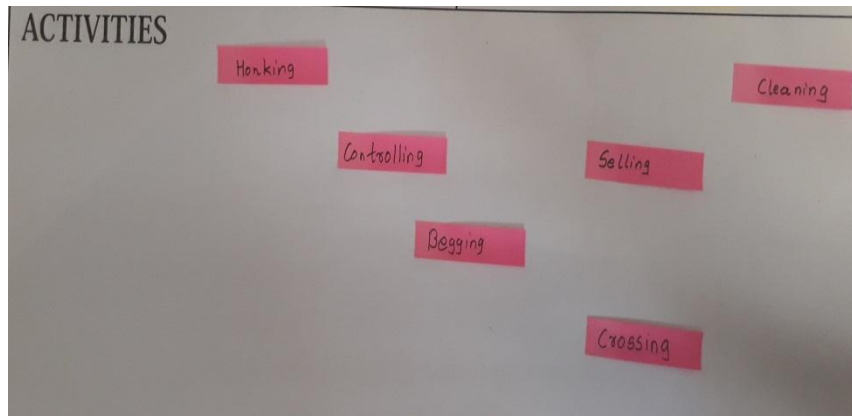


1. STAKEHOLDERS: Stake holders are the person who uses the system and maintains it. For example: Transport authority, local business, Road users, Police agencies etc.



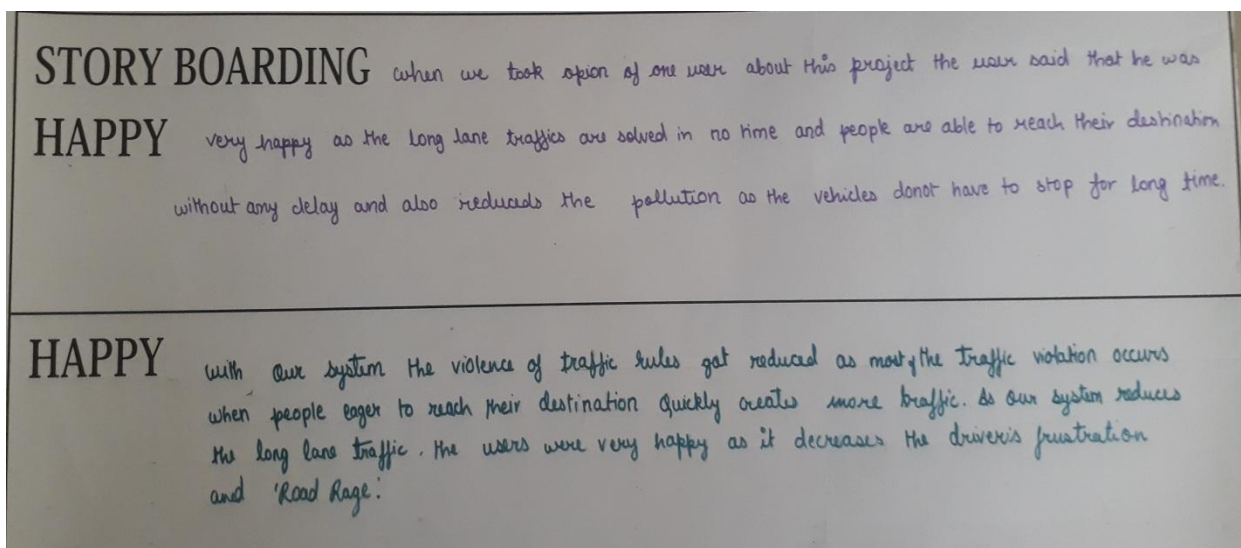


2. ACTIVITIES: Activities like controlling traffic, road crossing, beggars begging was going on.

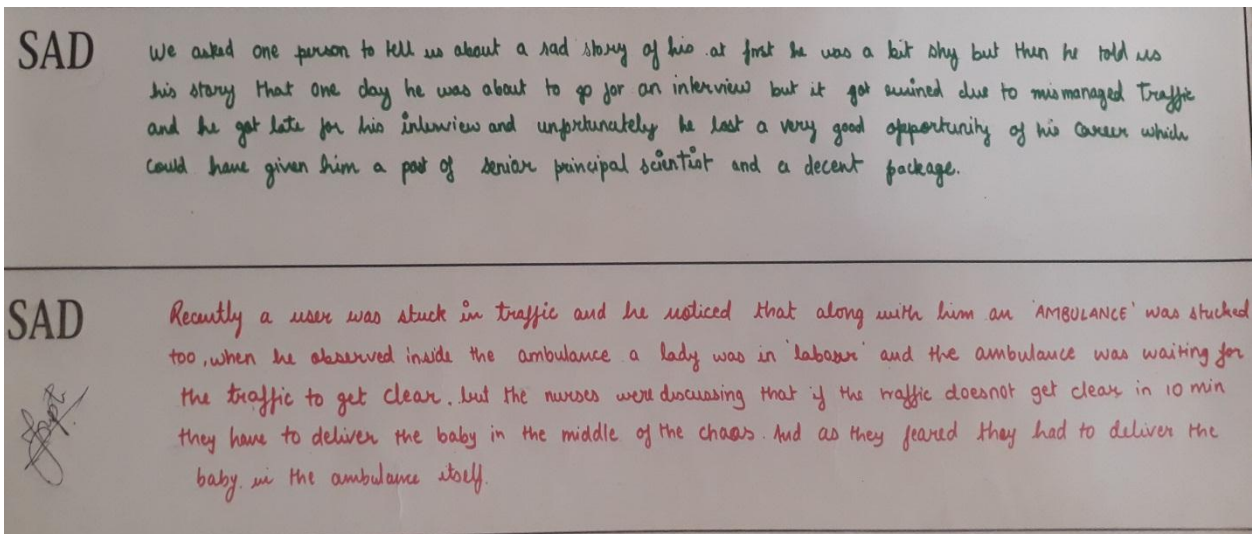


3. STORY-BORDING: We had noted down two happy sories and two sad stories

- Happystory:



- Sad-Story:



- **ROLE-PLAYING:**

We have go to the traffic facing roads to observe the problems about traffic and find some solution about that. Ask some people about their problems by traffic to get their opinion. Hence we by this method we had collected lot of information.

- **INTERVIEW-TECHNIQUES:**

We had taken interview of some police officer, ambulance driver and local people get their opinion on traffic problems and to get ideas of possible solution. Also with the help of the interviews we had noted the stories of story-boarding.

## EMPATHY CANVAS

**SAL EDUCATION**

Design For **TRAFFIC MANAGEMENT SYSTEM** Design By **All team members**  
 Version **01**

Date **5-10-17**

USER	STAKEHOLDERS
Cyclists Bikers Vehicle Drivers Pedestrians	Transport Authority Police Agencies Local Businesses Road Users Local Residents

**ACTIVITIES**

Honking  
 Controlling  
 Begging  
 Crossing  
 Selling  
 Cleaning

**STORY BOARDING**

**HAPPY** when we took opinion of one user about this project the user said that he was very happy as the long lane traffics are solved in no time and people are able to reach their destination without any delay and also reduced the pollution as the vehicles donot have to stop for long time.

**HAPPY** with our system the violence of traffic rules got reduced as mostly the traffic violation occurs when people eager to reach their destination quickly creates more traffic. As our system reduces the long lane traffic, the users were very happy as it decreases the driver's frustration and 'Road Rage'.

**SAD** We asked one person to tell us about a sad story of his at first he was a bit shy but then he told us his story that one day he was about to go for an interview but it got ruined due to mismanaged traffic and he got late for his interview and unfortunately he lost a very good opportunity of his career which could have given him a post of senior principal scientist and a decent package.

**SAD** Recently a user was stuck in traffic and he noticed that along with him an 'AMBULANCE' was stuck too, when he observed inside the ambulance a lady was in 'labour' and the ambulance was waiting for the traffic to get clear, but the nurses were discussing that if the traffic doesnot get clear in 10 min they have to deliver the baby in the middle of the chaos. And as they feared they had to deliver the baby in the ambulance itself.

- **CONCLUSION:**

We conclude that an Empathy Canvas is identification and way to express our domain in terms of feelings. It is the ability by which anyone can understand what the domain wants to say about people's feeling. It varies in four parts they are **USERS, STAKEHOLDERS, ACTIVITIES** and **STORY BOARDING**. Here, again story divides into two parts Happy Story and Sad Story. A Happy story is what a person feels happy by the use of the particular domain and same as a Sad story is what a person feels sad about the domain. Hence in story boarding both the aspects can be examined in the form of stories.

### **3. SECONDARY RESEARCH & DIACHRONIC AND SYNCHRONIC ANALYSIS**

#### 1.) Summary of secondary research

- It can be considered as taking observation of a particular problem by each and every members and to get there point of view.
- After that we had figured out possible solutions for he problems.
- We had also taken interviews of people who stuck in the traffic so that we can get point of view of traffic stuck people.

#### 2.) Diachronic Analysis

Diachronic analysis stands of topic study through the time. Diachronic analysis of traffic control system says that traffic problems had been started from the industrial evolution as the automobile industry grow up through 19th century.

- In the earlier times, traditional vehicles such as bullock carts horse riders etc. were used.
- Through that days animal wastages makes the pollution a bigger problems as they were he organic waste of animals which ultimately leads to the invention of engine which consider as a better options in these days.
- As the industrial age grown the demand for vehicles also increased as they are the cheaper, consistent and also easy to maintain, but with this traffic related problems also increased.
- Hence, the need to develop the traffic solving systems increased.

### 3.) Synchronic Analysis

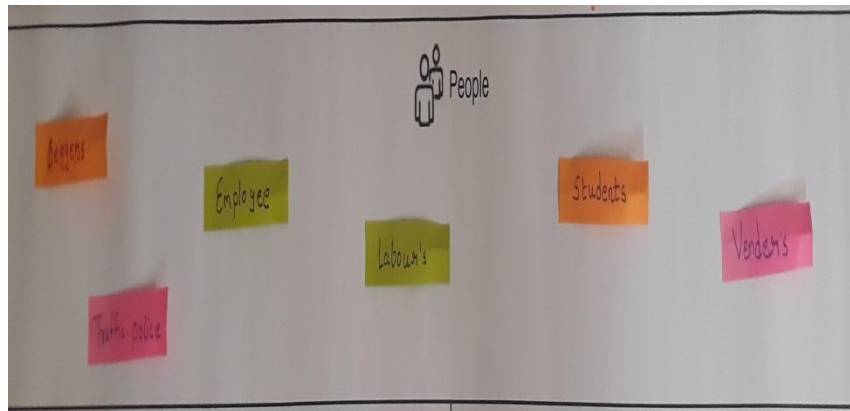
Synchronic analysis means analysis which is taken by considering the time. In the history of mankind there are many long traffic jams occurred some are listed below.

- The Brazilian city recorded its longest traffic jam ever last November, stretching out over 192 miles in November 2013.
- China National Highway 110 traffic jam. The China National Highway 110 traffic jam was a recurring massive traffic jam that began to form on August 14, 2010
- With 1 million cars on the road and substandard public transportation system, Atlanta experienced a standstill of more than 12 hours in January 2014.

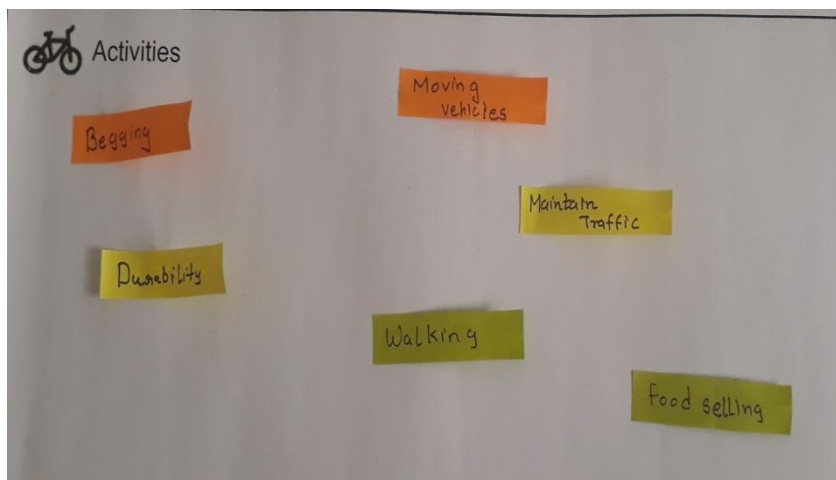
## 4. IDEATION CANVAS

Ideation Canvas has four parts containing People, Activities, Situation/Location, Possible solutions.

- PEOPLE: They are the persons who uses the system on daily basis and who faces the problems related traffic.

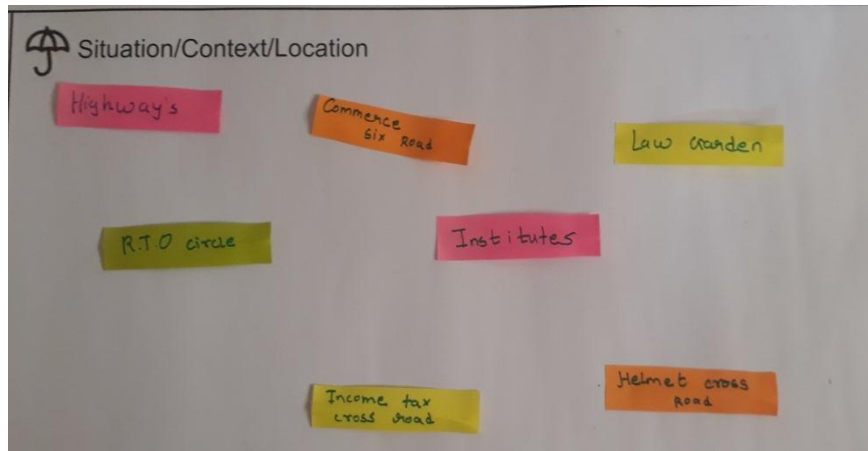


- ACTIVITIES: These are the activities going on at that particular place through which we came to know about which problems occur.

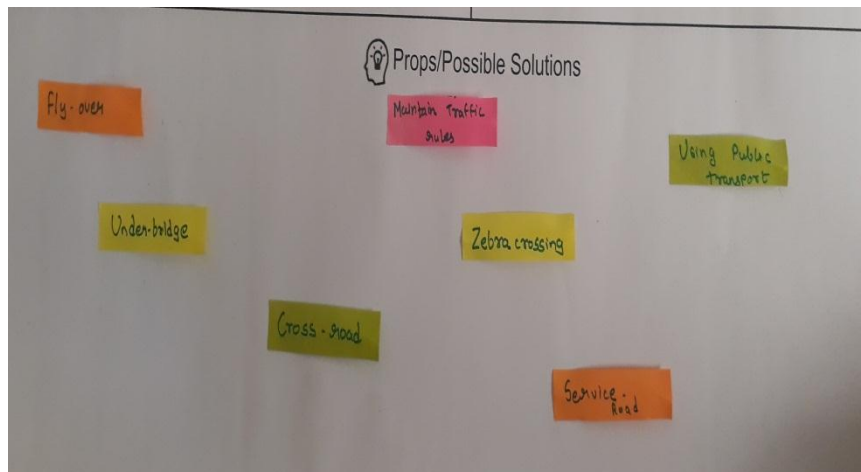




- **SITUATION/CONTEXT/LOCATION:** This part consists of the location which we had examined such as all the 4-crossing roads, and places such as Income-tax road, Law garden, Highways, Helmet-Cross roads etc.



- **POSSIBLE SOLUTION:** This part describes the possible solution for traffic related problems such as over-bridges, under-bridges, service roads, use of public transport, Zebra crossing, Maintain traffic rules etc.



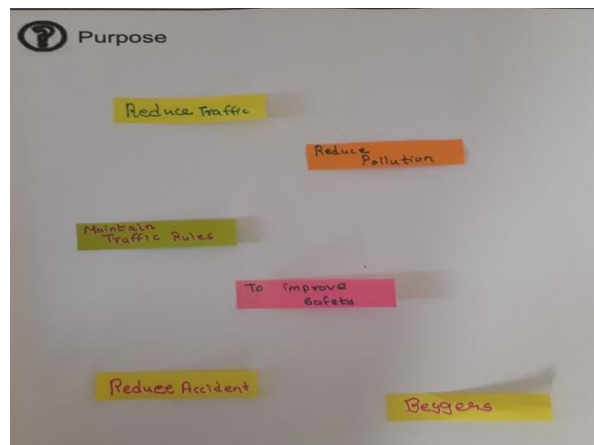
- Within the Ideation phase, we select a test case where we have more have emotional attachment and solutions for the problem faced by the people in the selected test case are considered. Hence Ideation Canvas is something that brings us near to our main problem which we want to find finally.



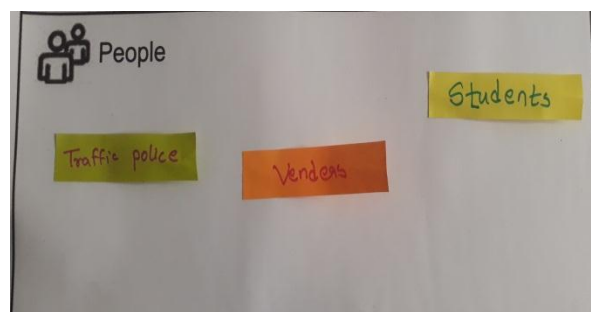
## 4. PRODUCT DEVELOPMENT CANVAS

Product development canvas consists of following parts:

- PURPOSE: It means that for which problem you are finding the solution. For example : To improve safety, Reduce accident, Reduce traffic etc.



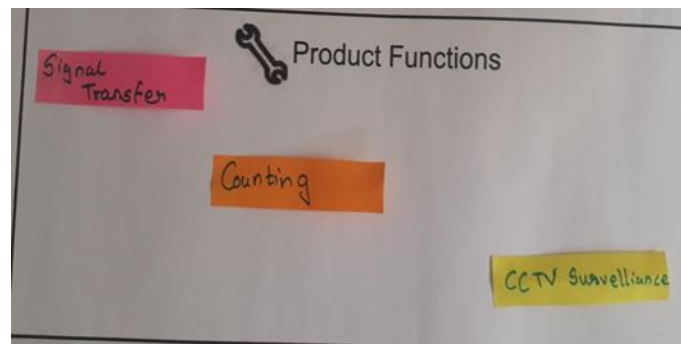
- PEOPLE: They are the persons who are related to traffic related problem such as Traffic police, Vendors, Students etc.



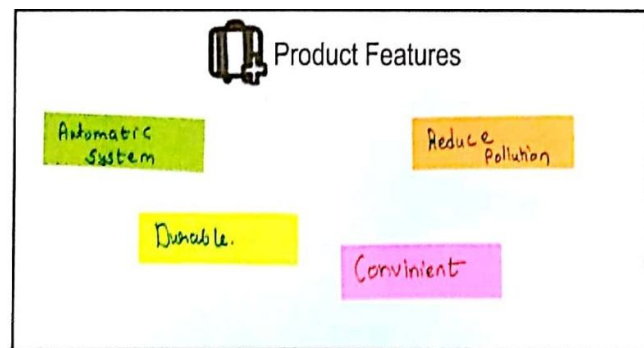
- PRODUCT EXPERIENCE: It is the part which describes, how the system is experienced by the users.



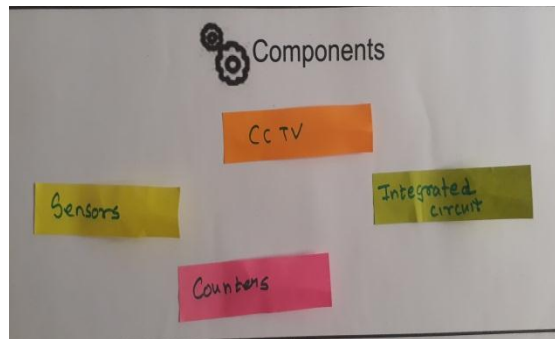
- PRODUCT FUNCTION: It describes the main function of the product such as signal transfer, counting, CCTV surveillance.



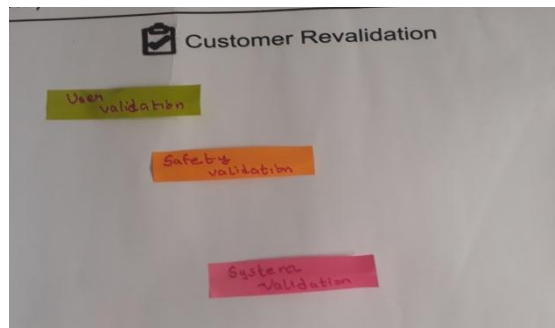
- PRODUCT FEATURES: This part contains the features of our product such as Automatic system, Durable, Convenient, Reduce pollution etc.



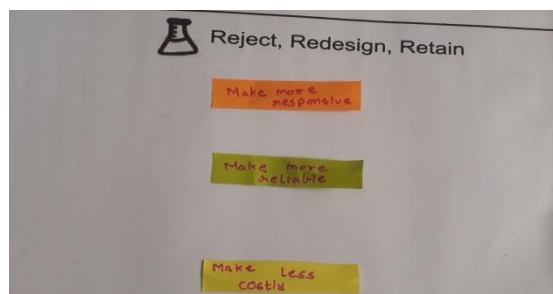
- COMPONENT: This part shows the component which are required in making the system. Such as Sensors, Counters, Integrated circuit etc.












- CUSTOMER RE-VALIDATION: First of before making product you have to complete customer validation means which thing is basically required to the customer related to your product.



- REJECT, REDESIGN, RETAIN: By the customers requirement we had redesign some features of the system.



## PRODUCT DEVELOPMENT CANVAS:

 <b>PRODUCT DEVELOPMENT CANVAS</b>			
Product Development Canvas		Team / Date / Version <u>6092</u> / <u>22-9-17</u> / <u>02</u>	
<b> Purpose</b>  <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Reduce Traffic</div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Reduce Pollution</div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Maintain Traffic Rules</div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">To Improve Safety</div> <div style="border: 1px solid black; padding: 5px;">Reduce Accident</div>	<b> Product Experience</b>  <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">More safe</div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Less Time Consuming</div> <div style="border: 1px solid black; padding: 5px;">Less Pollution Causing</div>	<b> Customer Revalidation</b>  <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">User validation</div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Safety validation</div> <div style="border: 1px solid black; padding: 5px;">System validation</div>	
	<b> Product Functions</b>  <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Signal Transfer</div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Counting</div> <div style="border: 1px solid black; padding: 5px;">CCTV Surveillance</div>		<b> Reject, Redesign, Retain</b>  <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Make more responsive</div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Make more reliable</div> <div style="border: 1px solid black; padding: 5px;">Make less costly</div>
	<b> Product Features</b>  <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Automatic system</div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Durable</div> <div style="border: 1px solid black; padding: 5px;">Convenient</div>		
<b> People</b>  <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Traffic police</div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Beggars</div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Vendors</div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Students</div> <div style="border: 1px solid black; padding: 5px;">Collectors</div>	<b> Components</b>  <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Sensors</div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">CCTV</div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Integrated circuit</div> <div style="border: 1px solid black; padding: 5px;">Counting</div>		

## **5. CONCLUSION**

We had concluded that Design Engineering is a subject which helps us to design our project by considering all the aspects related to the project. Through design engineering we learned to develop a system for the users by discussing problems which they faced so that in system we can solve them and give them satisfactorily product.