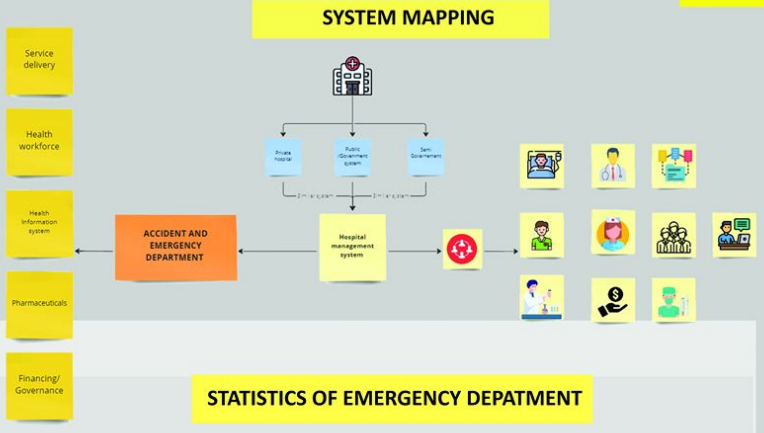
INITIAL IDEA

BRAIN STORMING

The initial idea of the system thinking was studying the hospital management system for learning the system of hospitals and the chronology of working in various departments. I.e Emergency department, the opt section , the inpatients department etc

SYSTEM MAPPING



USER JOURNEY MAPPING

STATISTICS OF EMERGENCY DEPATMENT

Injuries came at 6th in the list of common causes of death and are responsible for 11.3% of all deaths in SEAR (Table 1). Road injuries are the commonest cause of death in SEAR increasing from 24.7% to 28.9% from 2015 to 2030, respectively.[4] With 90% of deaths occurring in LMICs which only account for 54% of the world's vehicles, these deaths and injuries are unevenly distributed[5] Figure 2 illustrates country-specific road traffic fatality rates. Amongst people 15 to 29 years of age, road traffic injuries are the leading cause of death, and cost governments approximately 5% of GDP in LMICs. Other notable areas of injuries are falls (18.5%) and self-harm (19.4%) leading to deaths in SEAR (Table 2)[6].

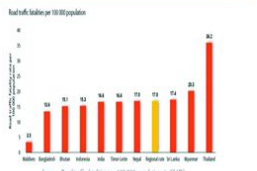


figure : Road traffic fatalities per 100,000 populations in SEAR[5]

**Source: Reference (5)

Table 1: Projections of mortality by cause for 2015 and 2030[4]

Deaths (thousands) by cause projected to 2015 and 2030 in SEAR					
Year		2015		2030	
Population (thousands)		1920761		2205146	
GHE 2012 cause category		Deaths	% Total	Deaths	% Total
	All Causes	14851	100	18595	100
I.	Communicable, maternal, perinatal and nutritional conditions	3748	25.2	2998	16.1
II.	Non-communicable diseases	9428	63.5	13472	72.5
	A. Cardiovascular diseases	4159	28.0	5872	31.6
	B. Respiratory diseases	1712	11.5	2561	13.8
	C. Malignant neoplasms	1412	9.5	2310	12.4
	D. Diabetes mellitus	434	2.9	690	3.7
III.	Injuries	1676	11.3	2125	11.4

(Based on the GHE 2012 estimates of causes of death for 2011, the regional projections of mortality by cause for years 2015 and 2030 were carried out in 2012.)[40]

**Source: Reference (4)

Injuries came at 6th in the list of common causes of death and are responsible for 11.3% of all deaths in SEAR (Table 1). Road injuries are the commonest cause of death in SEAR increasing from 24.7% to 28.9% from 2015 to 2030, respectively.[4] With 90% of deaths occurring in LMICs which only account for 54% of the world's vehicles, these deaths and injuries are unevenly distributed[5] Figure 2 illustrates country-specific road traffic fatality rates. Amongst people 15 to 29 years of age, road traffic injuries are the leading cause of death, and cost governments approximately 5% of GDP in LMICs. Other notable areas of injuries are falls (18.5%) and self-harm (19.4%) leading

- Adult patients (n=1312): Fever (29%), Pain Abdomen (22%), Trauma and road-traffic injuries (18%), Respiratory Distress (9%), Chest Pain (8%), Pregnancy-related (7%), altered mental status (6%), Stroke (5%), Snake bite (5%) and Poisoning (3%).
- Pediatric patients (n=250): Diarrhoea (6%), Trauma and road traffic injuries (5%), Fever (5%), Pain abdomen (4%), Respiratory distress (3%), Seizures (3%), Snake bite (2%) and altered mental state (1%).

Ambulance Services

- Even though 88% of hospitals had in house ambulances, trained paramedics needed to assist ambulance services were present only in 3%.
- Provision of specialized care during ambulance transport were largely poor: only 12% hospitals had mobile Stroke/ STEMI (for heart attack) program.
- Most of the hospitals lacked Pre-hospital arrival notification system.

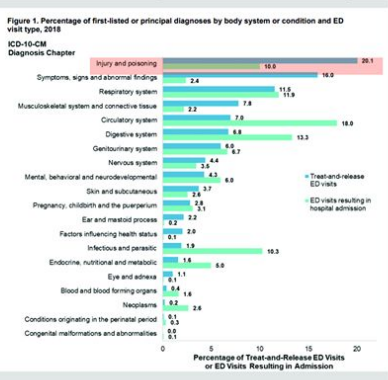
Physical Infrastructure

- Despite high patient load reporting to the EDs, the number of beds available at Emergency Departments accounted for only 3-5% of total hospital beds.
- Amongst the critical infra-related quality parameters assessed in the EDs, the following were important deficiencies: absence of point of care lab (94%), demarcated triage area (94%), police control room (47%), separate access for ambulance (76%) and adequate spacing for emergency department (68%).

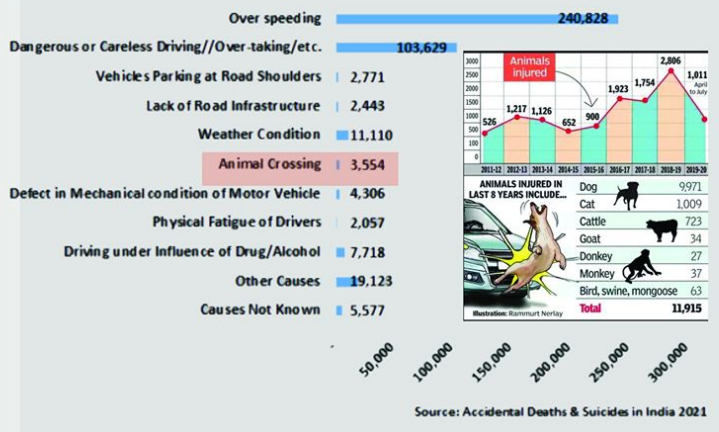
Human Resource

- Most of the hospitals lacked presence of general doctors, specialists and nursing staff dedicated for Emergency Departments vis-à-vis the average footfall of patients, even though, the hospitals as such, had sufficient overall numbers of required human resource.
- Besides, when present, most of the EDs were manned by junior doctors rather than specialists.

Figure 1. Percentage of first-listed or principal diagnoses by body system or condition and ED visit type, 2018



CAUSES OF ROAD ACCIDENTS



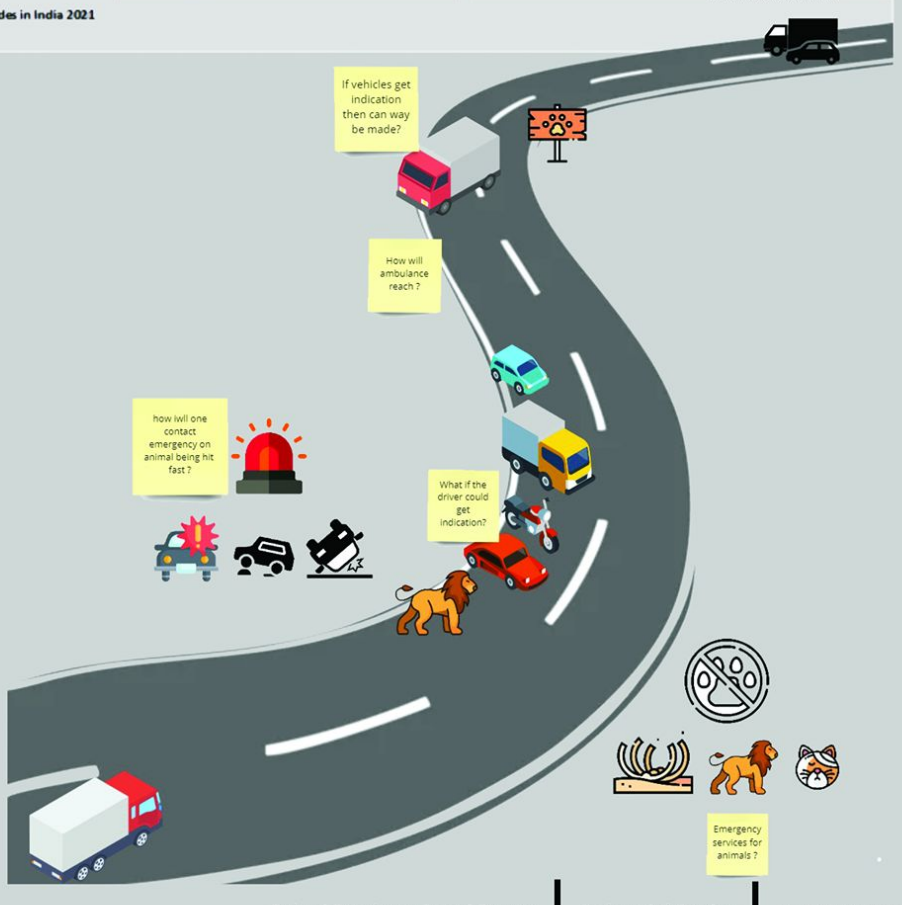
Source: Accidental Deaths & Suicides in India 2021

PROBLEM STATEMENT

Major road accidents happening in India has various listed reason and animal crossing is amongst one major contributing factor, which is causing harm to the animal health and extinction to human loss and thus it need a technology that restricts the further loss of life

PROBLEM BRIEF

One of the major contributing factors of road accidents are the animal crossing that happens from the city to the forest areas to the rural sector. It is thus creating a loss of life in animals and humans. Humans have carved their way out from forest and degenerated the environment, health and animal life , major reason that contribute to this factor are human errors , where the driver's over-speed , over take , lose attention or simply is unaware of the immediate animal behavior of crossing and resulting into loss of both lives. Additionally due to road traffic the emergency services are unable to reach the scene in time which ultimately leads to major injuries.



System Thinking and Design

RESPAWN

DIL DHADAKANE DO

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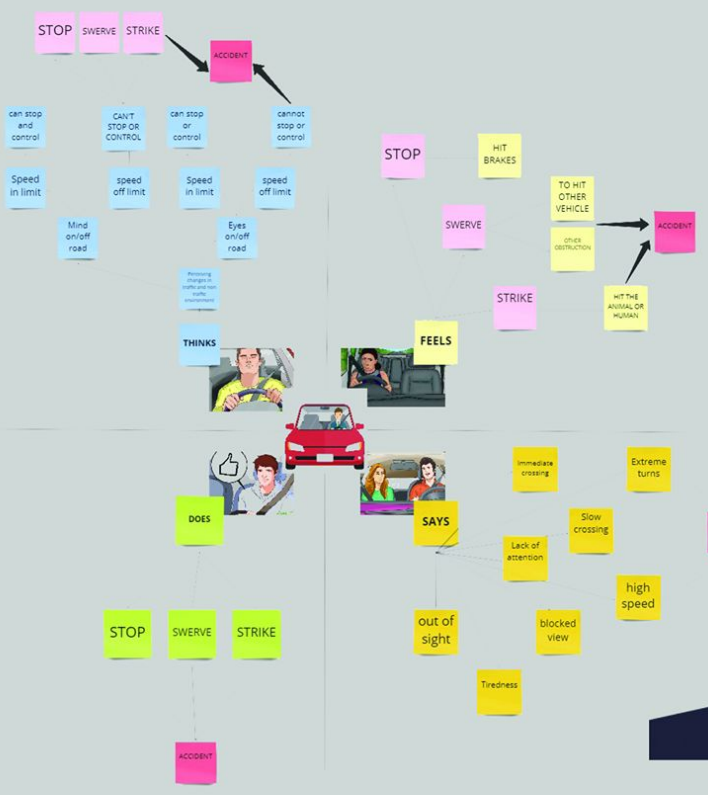
EMPATHY MAPPING



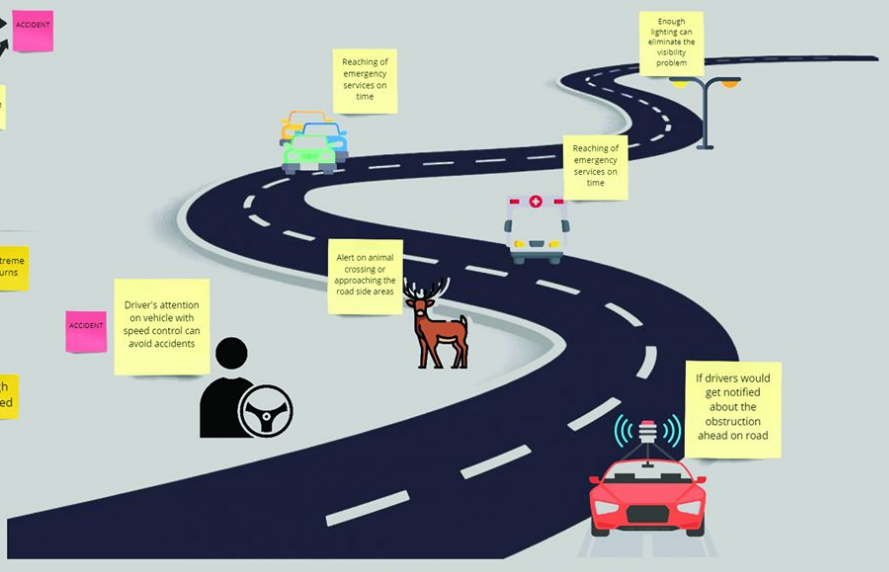
GOAL

Precautionary actions

The goal would be defined as to create an head up display for the drivers assistance that catches attention but doesn't distract the driver

Curative action

The application development that can ask for assistance in accidental situation and alert othe vehicles approaching in the area

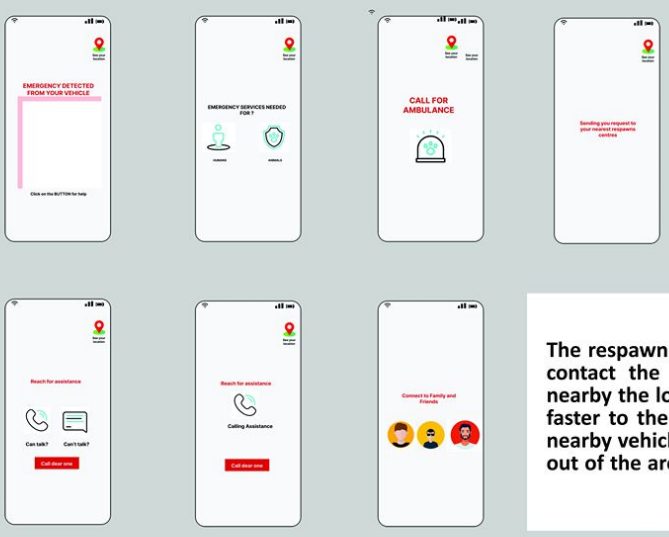


OPPORTUNITY MAPPING

SOLUTION MAPPING

HEAD UP DISPLAY DESIGN FOR DRIVER ASSISTANCE IN VEHICLES

- NORMAL SPEED INDICATION
- LOCATION OF VEHICLE
- SPEED LIMIT REMINDER
- LANE DRIVING
- DISTANCE
- TIME INDICATOR



The heads up display will give the indication to other drivers about the incidence and asking them to avoid the lane from which the emergency services have to pass by thus letting the other drivers avoid traffic and further vehicular indication

The respawn app will help to let the point of incidence contact the immediate emergency services available nearby the location to let the emergency services reach faster to the incidence place, also it will let the other nearby vehicles notify about the accident and pave way out of the area to avoid traffic and delay in the services

- MESSAGE ALERT INDICATION
- RED COLOUR INDICATION FOR BRINGING DRIVER'S ATTENTION
- SPEED CONTROL AND LIMIT
- INDICATION TO AVOID LANE DRIVING FOR EMRGENCY SERVICES
- DISTANCE OF INCIDENCE FOR DRIVING DECISIONS
- TIME INDICATOR
- LOCATION DISTANCE AND TIME

System Thinking and Design

RESPAWN

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