MUJ HACKS 4.0

PROBLEM STATEMENTS

MUJ acm Chapter

1

Identification of Accident-Prone Spots by the Road Users and their reporting to the concerned Highway Authority.

Road accidents are the cause of major concern today. Not only the lives are lost, but they also cause major damage to the highway infrastructure as well as risk the lives of the individual.The application should provide help to the users who wish to complain about the fatalities, accidents and poor condition of roads.Users will be provided with an interface to describe the condition of the accident site, including the location and image of the spot, extent of loss and other parameters addressing the severity of the accident. The application should provide the users with a report about the poor conditions of roads so that accidents can be avoided beforehand. These conditions can be Potholes, damaged road, eroded road merging of rural roads with highways, diversions, illegal speed breakers, unauthorized median cuts, traffic rules disobedience.

2

Geo Tracking of Waste and Triggering Alerts and Mapping Areas with High Waste Index

We do have waste lying in cities which makes it hard for cleaning staff to know which area requires attention and urgent garbage/waste pickup and Identify waste across the With Drone connectivity and intelligent algorithms, pattern matching the drone can fly in designated coverage areas to help monitor the waste. Cameras attached to Govt or Public Vehicles while driving can capture video and identify garbage areas and upload images (image /video scanning). Ability to capture images of garbage and upload, images will automatically have a GEO location position of the image. Mapping the location on a map with the Waste Quantity Index (approximate) so that the waste management team, can quickly take action based on the wastage level thrown in an area.

3

Vision-Based Sensing of Railway Tracks

These days the sabotaging of railway tracks has been causing immense accidents and loss of lives. The algorithm has to be developed with the help of computer vision and Internet of Things based methods to detect any anomaly on the railway tracks. The solution should comprise sensors that can keep a tab on the railway tracks and the consolidated picture can be seen at a local and global surveillance shelter.Besides sensor-based surveillance, the solution should also be camera-based and video-based surveillance systems to monitor the railway tracks and detect anomalies within a buffer area of the railway tracks. This solution should be able to identify railway tracks' health index and any deterioration must be accompanied by alerts, alarms and the geolocation of the tracks.

4

Forewarning system for disease / pest attack in crops

Early disease detection is a major challenge in the agricultural field. Farmers generally face problems with disease/pest attacks on different varieties of crops. Over a period of time, the severity has increased and resulted in huge losses. An intelligent system can be attempted with modern analytical tools to support timely forewarning and remedial measures for the same. An Intelligent system that gathers all the related information about the various pest attacking and diseases on different varieties of crops. Achieving self-sufficiency in crop production has ensured a high priority for the agricultural sector in the development plans of the country like India. The system should issue advisory with SMS alert in local languages. System should have provision for real-time expert advice when required in some interactive manner.
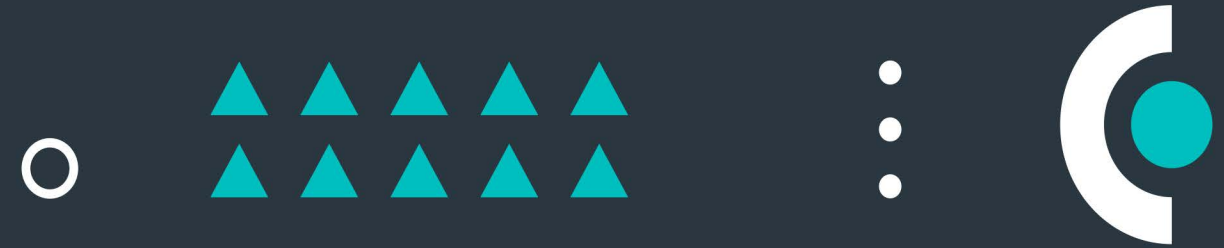
5

Smart Surveillance for Defence

The idea is to develop and create something that leads to a boost in technology that keeps a watch on both enemy and border activities. Keeping a track of the difficult paths and the weather that almost changes every day in sensitive areas like the Himalayan area in the country. Receiving audio signals from the patrolling team, having an insight into what is happening on the LOC and getting information about enemy activities even in unfavorable conditions as soon as possible is all a part of surveillance.

6

India Impact

What's the biggest crisis in the country right now? Which problem requires immediate attention and an immediate solution? which step if taken can bring a big change in the country? Every day there are talks that this needs to happen this thing requires rectification so now is the turn to do it. Give a solution to a problem that can impact our country in a way that brings a big positive change

7

Currency and Transaction Support

At the moment, sending money to another either domestically or internationally requires the use of a third party, be it your local bank or PayPal account. What's so bad about that? Well, these intermediaries usually charge hefty fees, and transactions can take an excessive amount of time. Additionally, we must trust these third parties in how they handle our personal data. It's also worth noting that not all individuals even have access to banking services. One of the benefits of Blockchain technology is that these databases work seamlessly with cryptocurrencies, which are, simply put, digital cash secured by cryptography. Blockchain technology allows for individuals to send cryptocurrencies between one another as a transfer of value. This is done without needing to rely on third parties.

8

Smart Education

Education for all is still just an idea which is still not implemented. Rural students have the same right to education as others. Moreover, the education system of the country still requires necessary rectifications and changes to prevent the stress that we all suffer daily.so now is the chance to create something that helps in changing things for good.

9

Traffic and Accident Management

How does it feel when you have to wait for hours to reach a destination that is just a few kilometers away? Traffic is not just a consequence of overpopulation, it's the result of poor traffic management skills. This leads not only to traffic jams but also to accidents and road rage. So, come up with ideas to manage the traffic and make roads safer.
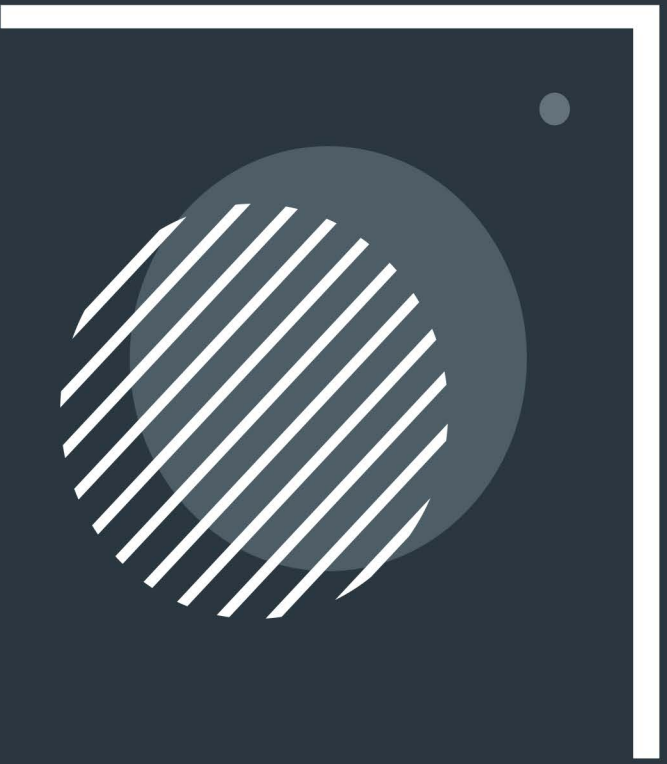
10

E-commerce

Build applications that help users to make better buying decisions. The applications can be around how to make the buying experience better around existing e-commerce platforms or could be new e-commerce solutions.

11

Smart Parking

A study was conducted by INRIX which states, 20% of traffic in urban areas can typically be attributed to people searching for parking. Most of the existing outdoor parking sensors that are currently on the market have accuracy limitations, which can negatively impact a person's parking experience. When parking, it is a quest to find a free spot, especially during peak hours. Causing any individual to drive around for hours on end to just find one. Such situations can waste a lot of time resulting in the unnecessary amount of toxic emission, extensive traffic and i mpatient drivers.Therefore an efficient parking system is required to monitor the number of empty parking spots which is displayed on a central screen to make the driver easily find a parking spot.
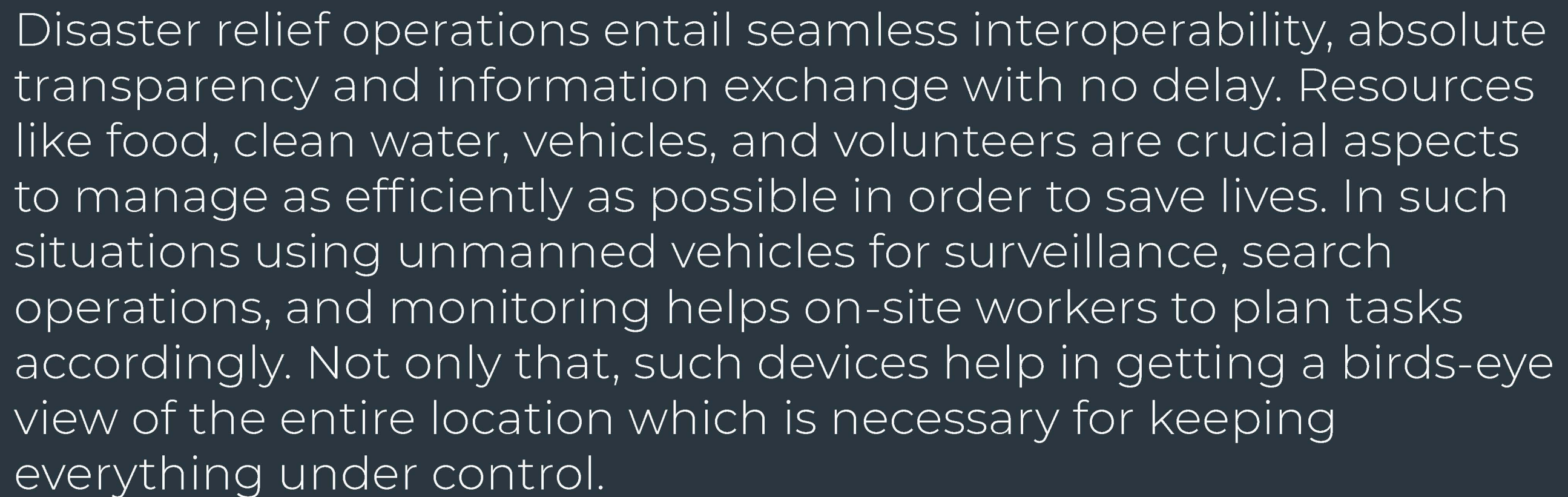
12

Disaster Management

Disaster relief operations entail seamless interoperability, absolute transparency and information exchange with no delay. Resources like food, clean water, vehicles, and volunteers are crucial aspects to manage as efficiently as possible in order to save lives. In such situations using unmanned vehicles for surveillance, search operations, and monitoring helps on-site workers to plan tasks accordingly. Not only that, such devices help in getting a birds-eye view of the entire location which is necessary for keeping everything under control.

13

Healthcare

With all the advancement in the field of healthcare, it is now time for the new innovators to step up and tackle the field. There are several situations that a patient faces before he/she receives proper treatment.Find your solution for the patient to conveniently traverse their way through the steps they need to follow before receiving a proper solution to their ailments. The solution can also be from the other side of the desk where hospitals can manage the humongous load of patients that walk inside the hospital to receive proper treatment.

14

Open Innovation

Don't like the above topics? have another innovative idea that does not satisfy the above mentioned criteria? No worries, here's your chance to create and bring something that you think can impact society. We would like to implement an "Open Innovation Process" to tap into the global brain of ideas. Think out of the box and produce something that solves problems in a way that no one else can solve