



# PROBLEM STATEMENTS

## 1. GAADI WAALA AAYA GHAR SE KACHRA NIKAL

Dumping grounds like Deonar and Kanjurmarg are not definitely source for good health, but people won't know besides how bad it smells that gases and pollutants can't be seen.

The impact is huge, especially in the winter season. Can we think of **small moveable "gas unit"**, which can travel through such garbage piles and can **"map the pollution level"** and also **"hazard levels"** (such as inflammable, fire risk, etc.) and then store and project the data to the **cloud**, which can plot it on a map with the zones which are dangerous.

**Additional features would be appreciated.**

## 2. CHECK MY TICKET!

At present, ticket checking is done on trains, at station exit and also at platforms. Ticket checking is a manual process and due to a shortage of ticket checking staff, only a small number of passengers are checked. There is a need for a solution which can ensure **100% ticket checking**. The solution should be such that passengers need not have to wait for getting his ticket checked.

While implementing solution, participants should consider the following points:

- **Where should the tickets be checked?** At which point should ticket checking to commence and at what point should the ticket be deleted.
- **How to track the distance travelled by the bearer of the ticket is appropriate?** It is a punishable offence to take a ticket of shorter distance and travel for a longer distance.
- **How to find people not buying a ticket at all?** It is evident that the most important aspect of this solution would be finding people who haven't bought a ticket.
- **Notification system for station in charge for further action when an offender is found.** For offenders without tickets what form of data should be identified and how should the data be transferred to the respected personals.

### 3. YE KISKI TASVEER HAI?

Create a platform for training, labeling and deploying and retraining image classification models.

Following are the expected features to be deployed:

- **Train a model(s)** that classifies images based on the dataset provided.

Dataset : <https://www.kaggle.com/puneet6060/intel-image-classification>

- Create a UI that can run inference using the model trained above on 128 unseen and unlabeled images uploaded at the same time.
- Once inference is completed, the UI should then be able to visualize these images and their predictions including the **confidence score** and provide other metrics as appropriate.
- The UI should have the functionality to change the labels of images that are wrong, add them to a database and run training again.
- Optionally, the UI should have an option to change the parameters of training. Parameters could be learning rate, number of filters, filter size etc.
- The newly trained model should be available for use by the UI to run another round of inference.
- Extra credit will be given if the entire process is done on the **cloud**.

## 4. MANN CHANGA TOH SAB VADIYA!!!

Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity. We as humans focus just on our physical health. Unfortunately, in most parts of the world, mental health and mental disorders are not accorded anywhere the same importance as physical health. Rather, they have been largely ignored or neglected. Mental disorder, if not taken care of, can lead to

- disability
- permanent memory loss
- manipulation or even self-harm

Design a system that would help an individual to overcome his Mental disorder by exploring parameters like **tracking anxiety levels, stress levels and physical and mental tiredness**. **CBT (Cognitive behavioral therapy)** is commonly used to treat a wide range of disorders, including phobias, addictions, depression, and anxiety. Use CBT techniques and methods along with **Machine Learning or Artificial intelligence** and provide solutions.

Also, a **chatbot** to deal with the above problem would be appreciated.

## 5. BETI BACHAO, DESH BACHAO

We are probably living in the worst time our modern society has ever seen in terms of women security. We aim to make women feel as strong as ever and strong enough to fight the parasites of our society, strong enough to fight the odds, strong enough to protect themselves against any sexual assaults.

**What is expected is a system which shall re-establish how very gregarious mankind is.**

However, for women who have gone through the ordeal of being even eve-teased by random strangers, know that the first thing that comes to your mind is definitely not opening an app on Google Play Store or App store! The presence of mind goes out the window and you just look for an escape route. A system should be developed to tackle these problems.

The users of the system should be authenticated while one-time registration to maintain a fool proof system (possibly **AADHAR verification**). It should consist of a onetime set up which will allow to register up to 5 numbers as **emergency contact**. Later a woman in distress shouldn't have to locate the app to be able to avail its facilities. Just **press any of the volume buttons or power button for 5 seconds** and the app will be activated. A consolidated report with the person's location, photograph clicked from the front and the back

## **PS 5 CONTINUED...**

camera, surrounding voice will be sent to five numbers registered in an SMS. The report will be altered every 5 minutes with a new photograph, updated location and surrounding voices. The app should take care of the situation wherein there is no network connectivity to send an SMS. A similar report should be sent to the nearest police station. The police station should contain a portal where they can receive such reports and will be geotagged and time stamped on digital map. Police portal should contain statistics about most unsafe zones (within reach of police station) and history of incidents reported.

A virtual assistant for the app should be able to provide insight when asked with questions such as “Is area XYZ safe?” (name only for example purpose) to a woman.

Additional features will be appreciated.

## **6. CORRUPTION IS THE TRUE ENEMY TO DEVELOPMENT (PUN INTENDED)**

**Corruption or frauds** have become common terms which are associated with government bodies working across the globe. It often leads to several social and economic problems, if remain unchecked. Increase in the rate of corruption adversely affects the development of any country. The government funds or money which is intended for the welfare of the public goes in the pocket of greedy officers. Thus, development of generic scenario is necessary in which a government has various schemes running for the welfare of common people and the funds are disbursed through a layered architecture of government passing through various organizations. Non transparency, poor management of government records, delay in verification process can lead to corruption in various schemes at various levels.

**Thus, it is expected to provide transparency, efficient management of government records and fast verification process for implementation of the above generic scenario using Blockchain Technology.**

Also, it is very important to verify the identities of the people's and the proofs submitted by them are true and marks up the eligibility criteria to claim the benefits of the welfare scheme disbursed by the government.

## **PS 6 CONTINUED...**

But identity verification is a serious problem. A digital identity reduces the level of bureaucracy and increases the speed of processes within organizations. But if this digital identity is stored on a centralized server, it becomes a honeypot for hackers. So, there's a need for a mechanism that detects multiple frauds that take place by providing false identity, false documents to claim the advantage of this funds.

**Thus, it is expected to provide an efficient and reliable identity management system for verification to the government for authorized public to claim these funds and enjoy the benefits of the same using Blockchain Technology. Also, maintenance of these digital identities securely is necessary.**

Additional features would be appreciated.