Team

We are a team of **6 highly passionate sophomores** pursuing **Bachelors of Technology** in **Computer Science with specialization in Artificial Intelligence**. Through the power and omnipresence of software, we intend to create a one-stop solution for human trafficking which assists authorised personnel in the search and return of potential missing persons. Human trafficking has been one of the highest causes of concern for a country like India which does not have enough resources and man power to tackle the problem of trafficking without any help from technology.

The police and concerned authorities are understaffed and overworked prompting the need to create a solution which harnesses the power of software and machine learning in order to create an intelligent software that can be used anywhere and anytime in the country.

Our solution can be used to both **speed up** the search process and **improve security**. Our aim and vision is to put an end to human trafficking once and for all and give the people, especially vulnerable groups like women and children the future and opportunities they deserve.

Team Details

Team Leader : Adwita Arora

Branch : Btech   **Stream :** CSAI   **Year :** II

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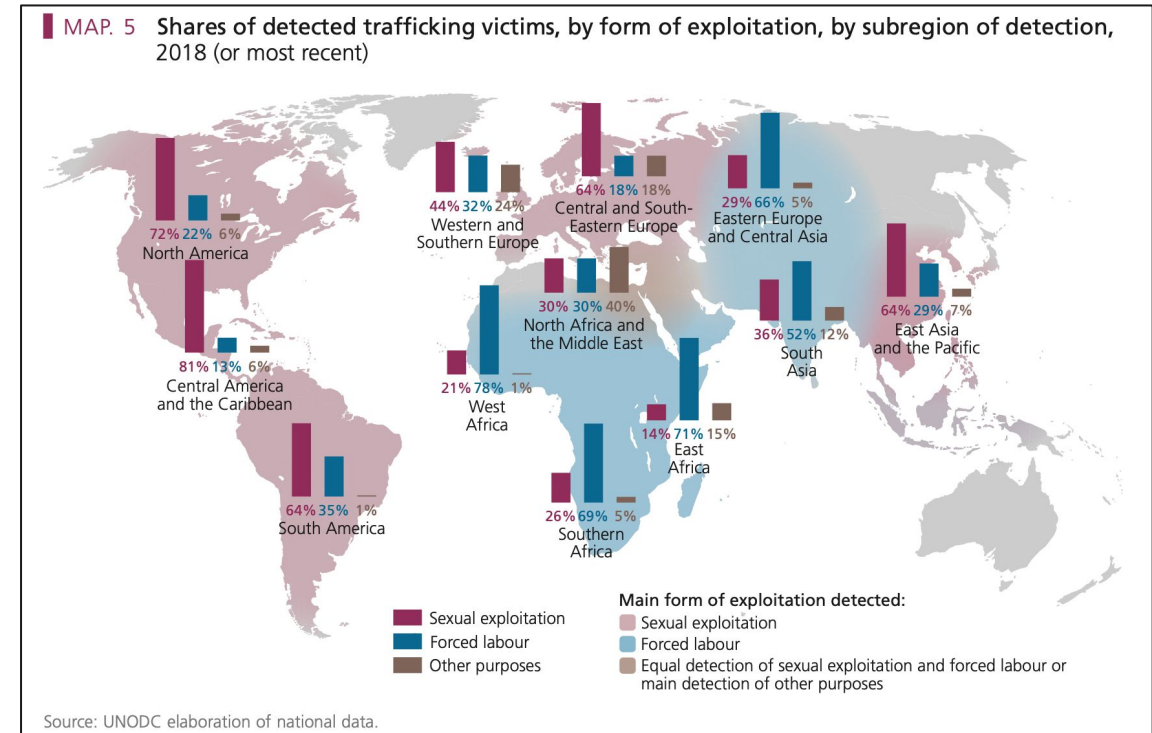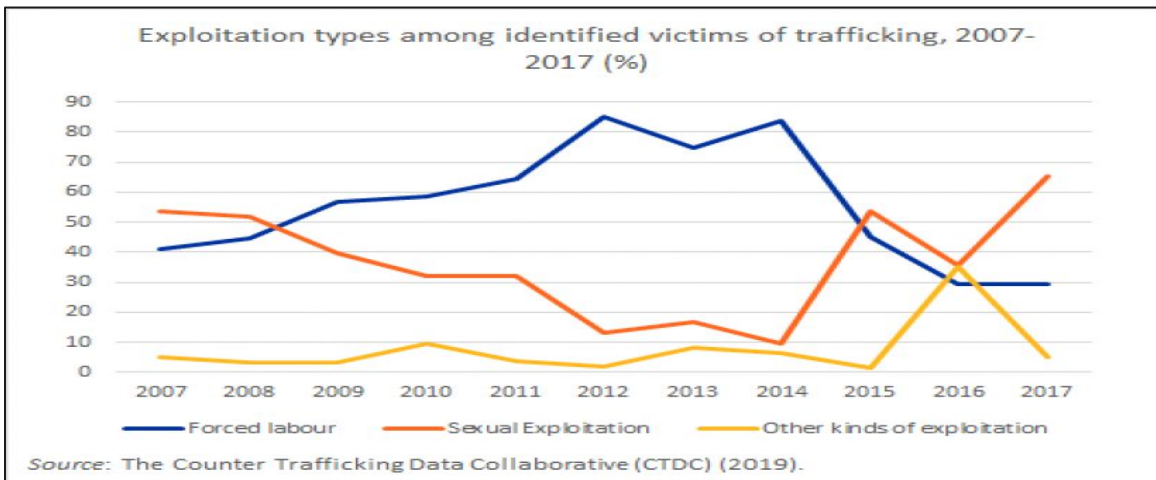**Branch :** Btech   **Stream :** CSAI   **Year :** II

Problem

- **Human trafficking** is a global problem and one of the world's most shameful crimes, affecting the lives of millions of people around the world and robbing them of their dignity.
- It remains a threat of high concern to the security of women and children in India. Reasons for this have been many, some of these as follow:
  - Sexual Exploitation
  - Forced labour
  - Criminal Activity
  - Begging
  - Forced Marriage
  - Removal of organs
- A recent study by Reuters states that about 16 million girls and women are victims of sex trafficking.

MAP. 5 Shares of detected trafficking victims, by form of exploitation, by subregion of detection, 2018 (or most recent)

Source: UNODC elaboration of national data.

Exploitation types among identified victims of trafficking, 2007–2017 (%)

Source: The Counter Trafficking Data Collaborative (CTDC) (2019).

- To make matters worse, one-third of traffickers are women and a majority of traffickers are known to the victims. According to the Kailash Satyarthi Foundation, 21% of families are willing to send their children for labour given increased economic vulnerabilities. All of these statistics are a cause for concern and requires prompt action to be taken.
- Nearly every country in the world is affected by human trafficking, as a point of origin, transit or destination and hence there is an urgent need to combat the problem..

Solution

- A **web portal** linked with **Aadhaar biometrics information system** which can be used by authorised personnel to have access to a **national database** consisting of data of victims of trafficking and the traffickers.

- The portal aims at keeping a track of **previously solved cases** of human trafficking along with the respective location of trafficker involved and the location where the victim was found. The data is then used to generate **heat maps** indicating **hotspots** of various forms of human trafficking to enable the concerned authorities to **improve security** as well as harness the power of machine learning to direct their search for the victims in the best possible direction before the victim is exploited.

- The concerned authorities are required to provide the portal with **missing reports**, along with the **recent images of the missing person** and his or her Aadhaar details.

- Whenever a potential victim is found, **facial recognition** can be used to detect whether a missing report of the same person has been filed or not. If a match is detected, the concerned authorities may be informed about the same. If no missing report is found using facial recognition, the potential victim's recent photograph would be uploaded to the database. If the same person is found again as a victim, the concerned authorities may be informed so as to prevent further exploitation.

- Such facial recognition mechanism can be used to scan every person's face using **surveillance cameras** installed at the **check-in gates** in railway stations, bus depots etc.

- Whenever a case is solved and the trafficker is identified, the **trafficker's data** is also saved in the database, along with the location where the trafficker was found and where the victims were kept, which would serve as an essential asset to machine learning algorithm.

- While the authorities conduct a local search for the missing person, an alert can be given to the nearby authorities and they can then take quick actions based on previous cases.

Product Architecture
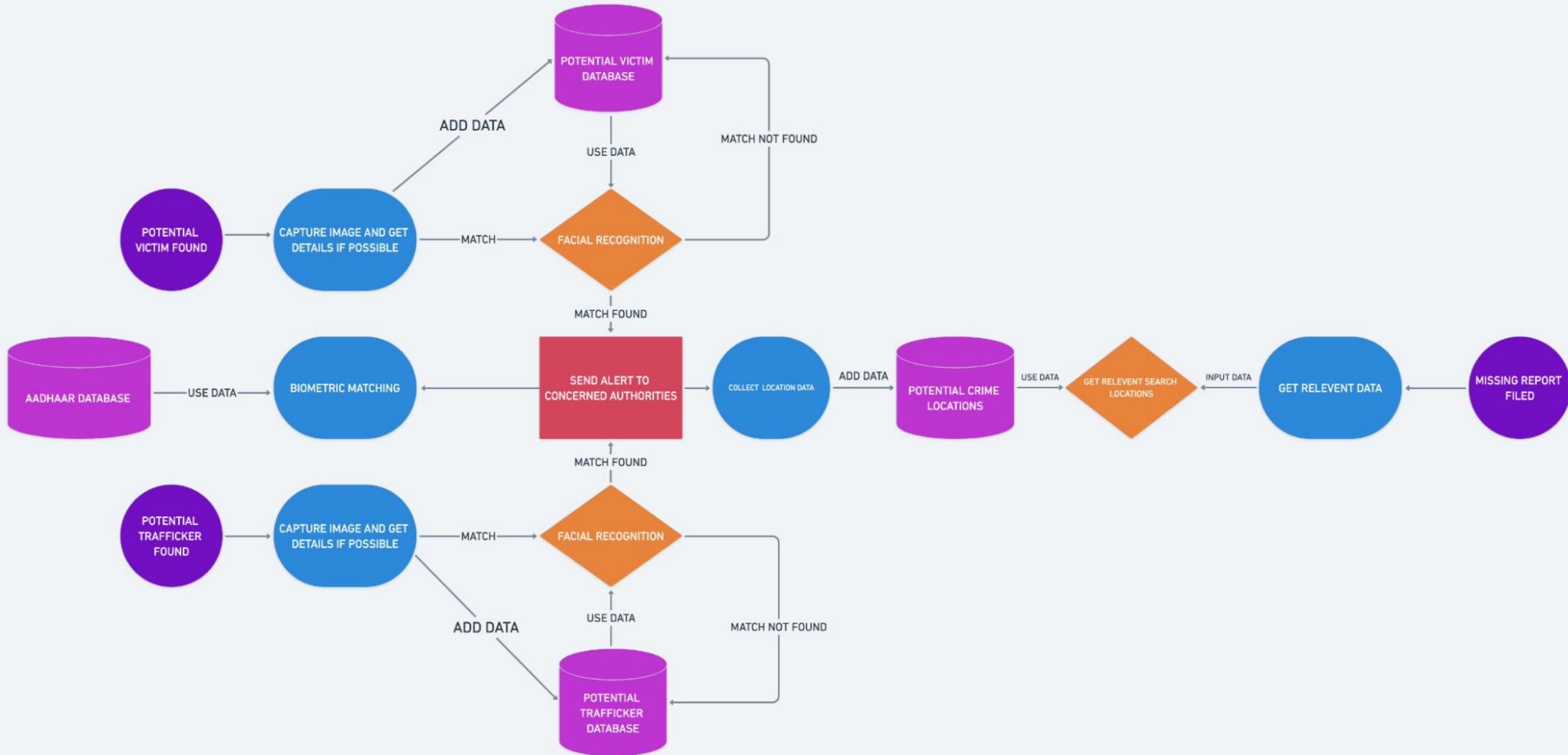
Competitive advantages

Strengths of technology/Team (USPs)

- We are a multidimensional team, with expertise in different fields of technologies.

- We are capable of deeply analysing critical problems and providing best pragmatic solutions to the problems.

- We aim to provide the most optimal and economical solutions possible.

- We are using the latest technologies in creating our solutions which has helped us in increasing the efficiency of our algorithms.
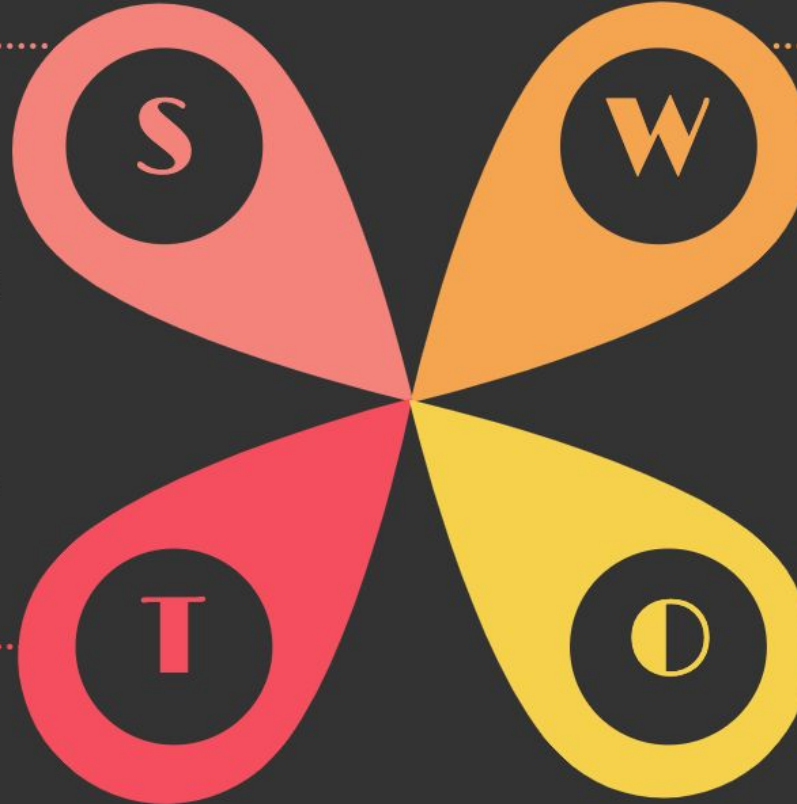
Assumptions and risks

Strengths

- One-stop solution for crimes related to human trafficking
- Database of both traffickers and victims updated on a real time basis
- Facial recognition technology used to search for missing reports in database on finding a victim
- Heat maps showing areas more prone to this crime
- Send alerts to concerned authority automatically

Weaknesses

- Algorithm needs a lot of data to be accurate and functional
- Absence of Aadhar data will lead to increased search time

THREATS

- Data breaches can compromise data of victims and traffickers

Opportunities

- Machine learning algorithm learns and improves with time leading greater efficiency
- Install cameras along with check-in gates to scan every person's face at various hotspots or transport stations, such as railways, bus stops

S W T O

Summary

- Since human trafficking poses to be one of the most serious issues of concern, several laws have been made in various countries. However, in a country like India which does not have enough resources and man power to tackle the problem of trafficking, technology might serve as a boon and bring wonders to minimise the risk of exploitation of victims of human trafficking.
- Once a missing child is found, police take a photograph of the child, and through the technology of facial recognition, we are able to trace whether a missing report of the child has been filed or not. Once we find the match, the concerned authorities are automatically informed which makes the process faster. Through this portal, we are also able to maintain a database of both the victims and traffickers, which police can use to narrow down searches, improve security and nab wrongdoers.
- Through the database we have created using this portal, we would be able to generate heat maps indicating areas where crimes like abduction of children for potential trafficking take place so that police are able to both improve security and act faster in case a missing report has been filed.
- This portal is intended to be used by authorized personnel since we are dealing with confidential information which must not be disclosed to the public because if fallen into the wrong hands, it can completely destroy the purpose of the portal.
- Integration of national, state and district level authorities through a country-wide portal to tackle human trafficking.

Q&A

How feasible is the idea?

Anybody with a decent smartphone can use this platform to report a missing complaint, add photograph for face identification in case the missing person is found making it economically feasible for the Indian government.

How can you tackle the problem of understaffed police enforcement?

The police and concerned authorities are understaffed and overworked prompting the need to create a solution which harnesses the power of software and machine learning in order to create an intelligent software that can be used anywhere and anytime in the country. Hence, we can use the already installed cctv cameras placed in localities for face detection which would help us in identifying traffickers.