Idea/Solution/Prototype:

We proposed to build a progressive web application which provides interface for the SAR (Search and detect aircrafts and rescue people in distress.

The approach which we select for searching the missing aircraft plays a major role in SAR ,because the when comes to lives of people who are in need of help.

With this situation we need to point the last known position (LKP) of the flight and then perform various determine the search area. Then we need to assess "high probability distributed maps" which would gi the objects in that particular sub-area. We used ArcGIS platform which provides various tools , features draw the various objects on maps and perform analysis on spatial data.

There are many cases which need to be considered in SAR to find missing flights, So based on the dete appropriate search pattern is selected.

Search patterns

The basic technique for searching an area is to move look-outs and/or electronic sensors th using one of a few standard patterns.

Visual Search Patterns

Sector Search: Useful when the position of the object is accurately known.

Expanding Square Search: Effective when location of search object is known within relative

Track Line Search: Employed when aircraft has disappeared without a trace while in route.

Parallel Sweep Search: Used when uncertainty in the survivor's location is large, requiring

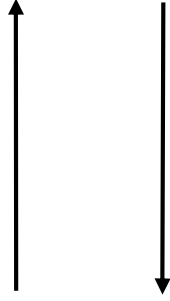**Creeping Line Search:** Used when aircraft is in coordination with a vessel.

Creeping Line Search, Co-ordinated: Coordinating the movements of aircraft with those o along the major axis.

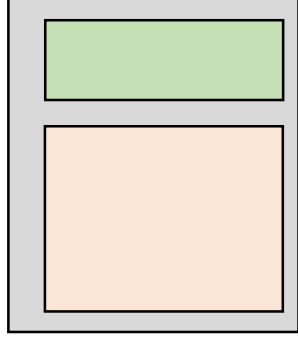**Contour Search:** Used around mountains and in valleys when sharp changes in elevation m impartible.

ArcGIS Server

Databases

request

GIS API Services

Response

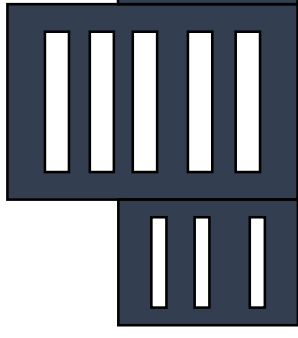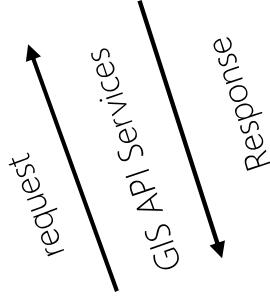request

STORE AND RETREVAL
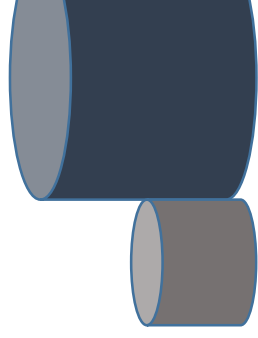
Response

Web Application

(Input)
Flight stats from missing
flight
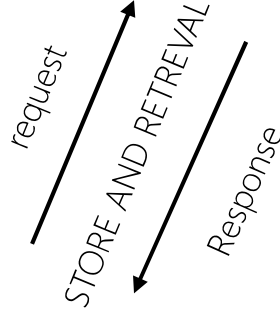
(Output)
Successful Detection of missing
flight

(Specialized User)

Technology stack:

We propose to build the Web Application with MVT(model-view-template) architectural pattern in min be built using Django, a Python Web Framework. The front-end will use standard web design language such as HTML, CSS and Bootstrap, JavaScript etc. The back-end will use the MySQL Database server wit maintained using SQL. This will facilitate the identification of previously occurred incidents and track t quickly etc. The Django development framework (Python Web Framework) may also provide additiona the overall structure of our application.

The ArcGIS is the platform which provides (Geographical Information System) GIS Technology features additional benefit to perform spatial data analysis on maps. By using this ArcGIS JavaScript API which operations on the map to develop an web based application.

The JavaScript is used to performing the client side validations and user interaction for the user to have interface to access the web application.

The AI/ML techniques which we are using in this application to identify the position of the missing fligh learned from the previous incidents and so that the searching area will be determined more quickly an identifying the missing flight increases.

Showstoppers/Dependencies:

A few challenges that might arise in the implementation of this web application are

The flight stats like last known position ,velocity, direction etc must be accurate otherwise we may within short time.