

# Ideation Phase

## Brainstorm&Idea Prioritization Template

Date	15 September 2022
Team ID	PNT2022TMID48153
Project Name	Emerging methods for Early detection of forest fires
Maximum Marks	4 Marks

### Brainstorm & Idea Prioritization Template:

#### Step-1: Team Gathering, Collaboration and Select the Problem Statement



### Brainstorm & idea prioritization

Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.

⌚ 10 minutes to prepare  
⌚ 1 hour to collaborate  
⚠ 2-8 people recommended

➡ **Before you collaborate**

A little bit of preparation goes a long way with this session. Here's what you need to do to get going.

⌚ 10 minutes

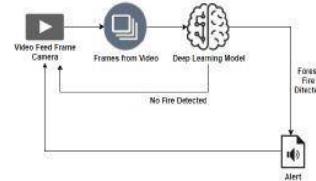
1 **Define your problem statement**

What problem are you trying to solve? Frame your problem as a How Might We statement. This will be the focus of your brainstorm.

⌚ 5 minutes

**Emerging Methods For Early Detection Of Forest Fires**

Forest fires are a major environmental issue, economic and ecological damage while endangering human lives. There are typically about 100,000 wildfires in the United States every year. Over 9 million acres of land have been destroyed due to treacherous wildfires. It is difficult to predict and detect Forest Fire in a sparsely populated forest area and it is more difficult if the prediction is done using ground-based methods like Camera or Video-Based approach. Satellites can be an important source of data prior to and also during the Fire due to its reliability and efficiency. The various real-time fire detection and prediction approaches, with the goal of informing the local fire authorities



## Step-2: Brainstorm, Idea Listing and Grouping

**2 Brainstorm**

Write down any ideas that come to mind that address your problem statement.

10 minutes

**3 Group ideas**

Take notes sharing your idea while clustering similar or related notes as you go. Once all sticky notes have been grouped, give each cluster a sentence-like label. If a cluster is bigger than six sticky notes, try and see if you can break it up into smaller sub-groups.

20 minutes

**Fahmidha**

- Based on Gaussian mixture model
- Image processing
- Detection using wireless sensor network
- Using Cluster Heads to determine the GPS

**Annapoorani**

- Emerging methods like LoRaWAN Sensor Networks
- Fire Detection Using CNN Model
- Using microwave sensor
- Using Optical sensor and Digital cameras

**Dayana**

- Collecting Data Using Satellite Image
- Implementing Ground Level Sensor for data
- Prediction using machine learning
- Utilising Neural network

**Santhi**

- Monitoring the Forest Using satellites
- Deep Learning can be used
- Early detection using unmanned Aerial Vehicle
- Using radio Acoustic Soundings system

**cluster A**

```

graph LR
    A[Early detection using unmanned Aerial vehicles] --> B[Utilising In neural network]
    B --> C[Emerging method like sensor network]
    
```

**cluster B**

```

graph LR
    D[Based on Gaussian Model] --- E[Detection using wireless sensors network]
    E --- F[Using cluster to determine GPS]
    G[Fire detection using CNN model] --- H[Based on Gaussian mixture model]
    H --- I[Monitoring forest fire using satellite]
    
```

## Step-3: Idea Prioritization

**4 Prioritize**

Your team should all be on the same page about what's important moving forward. Place your ideas on this grid to determine which ideas are important and which are feasible.

20 minutes

**Importance**

If each of these ideas could get done without any cost, which would have the greatest impact?

**Feasibility**

Regardless of their importance, which ideas are more feasible than others? (Cost, time, effort, complexity, etc.)

Importance	Feasibility	
High	High	Red Box: Early detection using neural network
High	Medium	Red Box: Using clusters heads to determine the GPS
Medium	Medium	Green Box: Using Radio-Sounding system
Low	Medium	Blue Box: Prediction using machine learning
High	Low	Purple Box: Detection using wireless sensor network
Medium	Low	Blue Box: Using optical smoke,gas and microwaves and sensor
Medium	Low	Yellow Box: Collecting data using drones flying over the forest