Project Title: Emerging Methods for early Detection of Forest Fires **Project Design Phase-I - Solution Fit** **Team ID:** PNT2022TMID17691

Define CS, fit into CC

1. CUSTOMER SEGMENT(S) CS

Industrial areas such as refineries, oil and gas and commercial area.

Federal agencies (forest fire management) such as National Disaster Management Authority (NDMA) USDA's Forest Service.

6. CUSTOMER CONSTRAINTS CC

Difficult to apply at large spaces like forest.

This system can also cause triple constraints like budget/cost, time, and scope. And these constraints are tied to each other.

5. AVAILABLE SOLUTIONS AS

From previous studies the available prototype model uses common sensors like Flame sensor, temperature sensor, gas sensor for fire detection those sensors are attached to trees animals and birds in the forest to detect the forest fire.
Pros of existing solutions: The forest fire area can be detected and can be located precisely. Cons of existing solutions: 1. Complicated to manage.
2.Sensor attached to the animals and birds will affect their habitat.

Explore AS, differentiate

Focus on J&P, tap into BE, understand

2. JOBS-TO-BE-DONE / PROBLEMS J&P

The process provides broad and detailed customer insights that are superior to typical market research methods and critical to developing better solutions for customers. It helped us understand a new space and identify the understand needs so we could enter a new market in a differentiated manner

9. PROBLEM ROOT CAUSE RC

The real reason behind this problem is campfires left unattended, the burning of debris, equipment uses and malfunctions, negligently discarded cigarettes, and intentional acts of arson. Lightning is one of the two natural causes of fires. Because of this many lives have been taken hence early detection of forest fires is important

7. BEHAVIOUR BE

Installing the Forest fire detection system and encouraging other people or forest management to do the same to prevent the death of many lives.

Focus on J&P, tap into BE, understand

Identify

3. TRIGGERS

TR

Death of many innocent lives like animals, birds and destruction of nature.

4. EMOTIONS: BEFORE / AFTER

EM

BEFORE: Encroachment through loss of diversity, reduced wildlife AFTER: Forest surveillance systems can be used to monitor stress in the forest so we can prevent human and wildlife and economic damage.

10. YOUR SOLUTION

SL

In case of forest fire detection, the burning substances are primarily identified as skeptical flame regions using a division strategy to expel the non-fire structures and results are verified by a deep learning model. The technology used to locate a forest or a bush fire is based on the concept of deep learning and YOLO algorithm. This deep learning model is deployed on a UAV which helps in detection of fire, meanwhile it can be monitored by web application and the forest fire area can be located in order to prevent it in advance.

8. CHANNELS of BEHAVIOUR

CH

8.1 ONLINE

Collect the date and form a dataset in order to compare the flames regions for forest fire detection

8.1 OFFLINE

In case of forest fire detection, the information is sent to forest authorities so that they will prevent