Project Title: Emerging methods for early detection of forest fires

Project Design Phase-I - Solution Fit Template

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Define CS, fit into CC

1. CUSTOMER SEGMENT(S)

CS

Forest guard

6. CUSTOMER CONSTRAINTS

Spending more money for the equipments, network connection for the devices, power supply interruptions, occurrence of damages sometimes these limitations the customers choices of solutions .

5. AVAILABLE SOLUTIONS

Alarm system for indication of five, remote sensing based methods such as satellites, high -resolution static cameras fixed on the ground, unmanned aerial vehicles.

Explore AS, differentiate

Focus on J&P, tap into BE, understand RC

2. JOBS-TO-BE-DONE / PROBLEMS

J&P

Always clear the area around the workspace.

The area should be even larger if it is windy and dry.

Making sure that to never operate equipment that produces sparks near dry vegetation.

9. PROBLEM ROOT CAUSE

RC

The fire is mainly caused by lightning, increased temperature, human activities and other reasons .

Human caused fires result from campfires, equipment use and malfunction, negligently discarded cigarettes, etc..

7. BEHAVIOUR

BE

They to monitor the forest areas themselves, often checking whether the camp fire are put off properly.

Always having fire fighting tools always ready.

Monitoring the temperature in the forest.

Focus on J&P, tap into BE, understand RC

3. TRIGGERS

TR

The need to protect the wildlife and themselves triggers them to act.

Not knowing when would fire starts

Taking suggestion from visitors.

4. EMOTIONS: BEFORE / AFTER

EM

They don't feel safe.

Always fear of catching fire in the forest.

Panic at the of sudden forest fire.

Afterwards:

They will have some satisfaction of knowing that some indication will come on the start of fire.

10. YOUR SOLUTION

SL

The computer vision methods for recognition and detection of smoke and fire, based on the still images or the video input from the cameras.

Deep learning method "convolution neural network" can be used for finding the amount of fire.

Enabling the video surveillance systems on forest to handle more complex situations in real world.

8.CHANNELS of BEHAVIOUR

CH

Online:

Installing cameras and sensors in parts of the forest and checking the situation.

Offline:

Making sure that no fire is started near the dry plants or highly inflammable objects.