

**Project Title:** Emerging methods for early detection of forest fires  
**Project Design Phase-I - Solution Fit Template**  
**Team ID:** PNT2022TMID33183

Define CS, fit into CC	<b>1. CUSTOMER SEGMENT(S)</b> <span>CS</span>  <p>Forest guard</p>	<b>6. CUSTOMER CONSTRAINTS</b> <span>CC</span>  <p>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 .</p>	<b>5. AVAILABLE SOLUTIONS</b> <span>AS</span>  <p>Alarm system for indication of fire, remote sensing based methods such as satellites, high -resolution static cameras fixed on the ground, unmanned aerial vehicles.</p>	Explore AS, differentiate
Focus on J&P, tap into BE, understand RC	<b>2. JOBS-TO-BE-DONE / PROBLEMS</b> <span>J&amp;P</span>  <p>Always clear the area around the workspace.</p> <p>The area should be even larger if it is windy and dry.</p> <p>Making sure that to never operate equipment that produces sparks near dry vegetation.</p>	<b>9. PROBLEM ROOT CAUSE</b> <span>RC</span>  <p>The fire is mainly caused by lightning, increased temperature, human activities and other reasons .</p> <p>Human caused fires result from campfires, equipment use and malfunction, negligently discarded cigarettes, etc..</p>	<b>7. BEHAVIOUR</b> <span>BE</span>  <p>They to monitor the forest areas themselves, often checking whether the camp fire are put off properly.</p> <p>Always having fire fighting tools always ready.</p> <p>Monitoring the temperature in the forest.</p>	Focus on J&P, tap into BE, understand RC

<p><b>3. TRIGGERS</b> <span>TR</span></p> <p>The need to protect the wildlife and themselves triggers them to act.</p> <p>Not knowing when would fire starts</p> <p>Taking suggestion from visitors.</p>	<p><b>10. YOUR SOLUTION</b> <span>SL</span></p> <p>The computer vision methods for recognition and detection of smoke and fire, based on the still images or the video input from the cameras.</p> <p>Deep learning method “convolution neural network” can be used for finding the amount of fire.</p>	<p><b>8.CHANNELS of BEHAVIOUR</b> <span>CH</span></p> <p>Online:</p> <p>Installing cameras and sensors in parts of the forest and checking the situation.</p> <p>Offline:</p> <p>Making sure that no fire is started near the dry plants or highly inflammable objects.</p>
<p><b>4. EMOTIONS: BEFORE / AFTER</b> <span>EM</span></p> <p>They don't feel safe.</p> <p>Always fear of catching fire in the forest.</p> <p>Panic at the of sudden forest fire.</p> <p>Afterwards:</p> <p>They will have some satisfaction of knowing that some indication will come on the start of fire.</p>	<p>Enabling the video surveillance systems on forest to handle more complex situations in real world.</p>	