

Project title: Gas leakage monitoring and alerting system for industries.

## Project design phase 1

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Define CS fit into CL	<b>1. CUSTOMER SEGMENT(S)</b> <span>CS</span> <p>Gas industries Chemical industries Food industries</p>	<b>6. CUSTOMER LIMITATIONS</b> <span>CL</span> <small>EG, BUDGET, DEVICES</small> <p>The gas industries or the industries where the gas pipes are used/fixed. They need to monitor:          *speed of gas leak          *amount of gas leaks          *type of gas that leaks (to know the caution/danger of the gas) So they can close the gas pipes before it spreads wider. they can open vacuum gates/tunnels to get them out of the area/industry and they can evacuate if it is too serious. So they can use product to measure the amount of gas leak and the speed of gas leaks. our product will monitor the gas leak for 24/7 and alert them when gas leak occurs. so the workers in the industries can take safety measures or evacuate.</p>	<b>5. AVAILABLE SOLUTIONS PROS &amp; CONS</b> <span>AS</span> <p>Our product will alert every parts of the industry by red siren, alert sound and alert messages. We send alert messages to every neighbours near the gas industry for them to evacuate in dangerous situation. It monitors the gas leakage by thermal camera and gas sensor. It won't just alert the workers and industry it'll also alerts the people living near the industry. It also measures and indicates the speed of gas spreads and the amount of gas spreads. It also indicates the caution level in the screen so the workers can close the gas pipes before the gas spreads wider.</p>	Explore AS, differentiate
	<b>2. PROBLEMS / PAINS</b> <span>PR</span> <small>+ITS FREQUENCY</small> <ul style="list-style-type: none"> <li>* To monitor oil and gas pipelines</li> <li>* To conduct aerial inspections to maintain asset integrity.</li> <li>* quality control.</li> <li>* ensure whether the workers in the industries didn't expose them to the toxic gases and gas emissions.</li> <li>* conducting routine leak detection inspections to a facility can help and prevent from unexpected incident.</li> <li>* if a plant maybe susceptible to gas leaks, a fixed gas detection should be implemented in the work place.</li> <li>* portable gas detectors should also be used to detect leaks remotely.</li> <li>* the most urgent problem is to be fixed is the gas pipes should be closed before the gas spreads wider to prevent from massive fire accident and it prevent from massive deaths by the fire accident.</li> </ul>	<b>9. PROBLEM ROOT / CAUSE</b> <span>RC</span> <p>In the industries like oil, gas, and other industries where the gas pipes are used. And the industries where the toxic and flammable gases are stored and used. In those places the gas monitoring and detecting system is required for the safety measures. IoT powered gas detection system identifies and alerts the toxic and flammable gases leaks occurs. The gases like          *carbon-mono-oxide,          *hydrogensulphide,          *chlorine, ammonia,          *chlorine trifluoride. Those gases are toxic and easily flammable gases which leads to fire accidents. They needed to be stored and the shouldn't be leaked. The common cause of the problem</p>	<b>6. BEHAVIOR</b> <span>BE</span> <small>+ITS INTENSIT</small> <p>In the gas industries the gas pipes and pipe lines are monitored by the alerting system. Those systems works 24/7. it monitors whether the gas is leaking or not. They alert the industry when the gas leakage occurs. By this way the industry and workers in the industry were able to stop the pipe lines and the workers and people can evacuate to a safe place when the gas spreads wider or when it cannot be fixed. The gas detection sensors will detect and alert/ notify the workers of the industry. So they can take safety measures or evacuate.</p>	
Identify strong TR &	<b>3. TRIGGERS TO ACT</b> <span>TR</span> <p>When the gas leaks occurs through the pipe lines or the gas containers. The gas leakage and alerting system will alert everyone in the industry. When they hear or see the alert, the</p>	<b>10. YOUR SOLUTION</b> <span>SL</span> <p>By our product the customer can have a high level gas monitoring system to prevent from massive gas leakage and massive fire combustion which leads to massive fire accident</p>	<b>8. CHANNELS OF BEHAVIOR</b> <span>CH</span> <small>ONLINE</small> <p>The company can communicate with us through online. For ordering / registering for services.</p>	Extract online & offline CH of

Identity strong TR & EM	<p>workers will close the pipe lines . if the gas leaks wider they need to evaculate and have to move to a safe place to escape from death.</p>	<p>that causes massive amount of death and massive loss for the company.</p>		Extract online & offline CH of BE
	<p>4. <b>EMOTIONS</b> BEFORE / AFTER <b>EM</b></p> <p>Before :</p> <p>The workers were scared of gas leakage and they don't know when the gas leakage occurs. They won't feel safe</p> <p>After :</p> <p>They feel safe and secure after installing our system. They are prevented from a massive loss of the company.they can work without any scared thought's</p>		<p>OFFLINE</p> <p>We can provide services to the site. The company also can communicate through offline.</p>	