**Worksheet-2**

**Idea evaluation worksheet**

**Q1.what’s the problem?**

**A:Obstruction or debris in fan and air passage system of industrial duct fans leads to improper flow of air in to the building leading to discomfort and eventually suffocation.**

**1. Is it real?**

**A: Yes, it is real**

**2. How big is the problem?**

**A: They are used to control the quality of air in an enclosed space by getting rid of smoke, moisture, fumes and odors. If you did not do this you would perhaps find mold developing on the building which will not go down well with the health inspectors.**

**3. When does it occur?**

**A: When the machines are at running state the dust get accumulated and spreads in the working premises and cause suffocation.**

**4. Frequency of occurrence?**

**A: It occurs continuously until the machines are in running state.**

**5. Current solutions?**

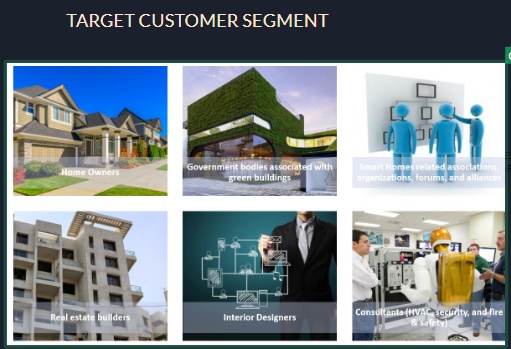
**A: we developed an algorithm which differentiates the vibrations of the machine for four different cases such as-**

1. **Machine condition (ON).**
2. **Dust accumulation.**
3. **Presence of obstacle.**
4. **Machine condition (OFF).**

**Q2.Who has the problem?**

**Industries, residential and commercial sectors.**

1. **Profile : Business**
2. **Lifestyle: Industrial, commercial consumers**
3. **Segment: Comfort**
4. **Position –criticality of need: High**

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**Q3. What’s your solution?**

**A: A predictive maintenance algorithm which alerts the operations on the condition of duct fan is proposed. The algorithm differentiates between obstruction to air flow and dust deposit on the impeller blades. Besides this, the status of the duct fans is continuously logged to cloud for remote monitoring.**

1. **What’s your unique proposition?**

**A: Predictive maintenance.**

1. **Do you own it-IPR?**

**A: No**

**Q4. Who is competition?**

1. **How are you different?**

**A: A duct fan differentiate between dust accumulation and blockage and also maintenance is predicted.**

**Are you the uber or you ubered?**

**Q5. How is it made possible?**

**A: A machine learning algorithm shall be developed to classify vibration signal with respect to dust accumulation or obstruction to airflow.**

1. **Resources/technology/social/ecological feasibility?**

* **MATLAB/Simulink shall be used to develop the control algortm and state flow for scheduling the events.**
* **Vibration of the motor fan is monitored using accelerometer and spectral analysis is performed initially**
* **A machine learning algorithm shall be develop to classify vibration signal with respect to dust accumulation/obstruction to airflow.**

1. **Man, money, machine , materials?**

**A: Commercial buildings, industries, hotels and theatres**

**Money:3000/-**