1. Project Summary: Give a quick description of your innovation or initiative and how it works. (300)
   1. The Robust Adaptive Network is akin to a superorganism,it’s a collection of robots interconnected into a rescue-network that tackle land roaming (rovers) and air travel (drones).Each of these small robots spreads in a coordinated swarm through disaster areas (wars, outages, natural disasters, etc.).
      1. *Mission statement*
   2. RAN is a novel invention to cut the ghastly losses that occur from natural disasters. It is a collection of robots interconnected into a rescue-network that spreads in a coordinated swarm through disaster areas (wars, outages, natural disasters, etc.).
   3. **The Robust Adaptive Network is the world’s long-awaited solution to disaster response. As a robotic system with the ability to deliver payloads, provide communications, supply live data, and self-sustain its own development, RAN will ensure that all further disasters never cause such ghastly losses.**
2. **The Problem: What problem are you helping to solve and why is it important to you? (1400)**
   1. A significant cause for casualties in disasters is the lack of communications. This is because people are unable to call for help, receive notices,or organize rescues. RAN solves this by acting as a blanket of WIFI to an affected area through each robot’s satellite-to-wifi router so victims can access temporary public WIFI to remain aware. Another leading cause of casualties in disasters is a lack of access to supplies. Victims of disaster are prevented from restocking necessities like food, water, medication,etc. RAN beats this by distributing payloads to any location from its designs that follow the engineering of firefighting-drones and high-cargo rovers. Assistance efforts in disasters are often ineffective due to the rescuers having scarce information, causing missions to be unaware of where to best allocate their resources. RAN provides operations with first-hand, live data from the disaster zone through its live-camera and sensor feeds.
   2. It is impossible to build a dome around a city to block hurricanes, it is not feasible to screw down tectonic plates to stop earthquakes. It is common sense that natural disasters are an inevitable occurrence, yet humanity has long ignored a proper solution to disaster response and its tragedies.

One significant cause for casualties in disasters is the lack of communications. This is because people are unable to call for help, receive notices, or organize rescues.

Another leading cause of casualties in disasters is a lack of access to supplies where victims of disaster are prevented from restocking necessities like food, water, medication,etc.

Additionally, assistance efforts in disasters are often ineffective due to the rescuers having scarce information, causing missions to be unaware of where to best allocate their resources.

All these casualties are easily preventable with the knowledge we have today, yet have not been implemented in disaster response.

Implementing a proper solution to disaster response is important to me because not only have my family and I experienced great suffering through many disasters like the Delhi Floods, Hurricane Harvey, Winter Storm Uri, etc, but I am also frustrated at the lack of progress in our response efforts. Disasters are inevitable and most casualties are preventable, yet we are still suffering under an easy-to-defeat, inevitable problem.

* + 1. *Data/stats*

1. **Your Solution: What is your solution and how is it different from other solutions? (1400)**
   1. Society’s current technologies for disaster response are appallingly underdeveloped. Most advancements have been made in forewarning systems, and post-disaster scenarios. These current disaster technologies are always too early, too late, not flexible, and not able to actively help the victims of disaster. This is why the Robust Adaptive Network is vital.

The Robust Adaptive Network saves countless lives by delivering payloads, providing communications, and collecting firsthand, accurate data.

RAN delivers supplies to people in natural disaster areas, helping them stay inside shelter instead of going into hazardous conditions to get supplies. These supplies include food, medicine, clothing, tools, first aid and tracking locators.

RAN also brings the opportunity for victims of natural disasters to communicate, ask for help, gather information, and alert rescuers. This is through RAN’s ability to provide WIFI access through satellite-to-ground routers. This will allow people to call for help in an emergency, find important warnings/alerts, and broadcast insightful knowledge of the unfolding scene.

RAN is also capable of delivering live camera and sensor data to rescue operations, helping them assess situations. This allows organizations like FEMA or the Red Cross to more effectively allocate their limited resources. This also lets remote experts decide the best course of action.

* + 1. *Example scenario where RAN would have saved*

1. Founding Story: Share a story about the "Aha!" moment that led the founder(s) to get started or the story of how you saw the potential for this to succeed. (600)
   1. **My family, friends and I have gone through many disasters. These incidents included the Delhi Floods, Turkey Earthquakes, Indonesia Fires, Hurricane Harvey and Storm Uri. Living through the casualties and wreckages of these catastrophes left me with a lasting impression of how ineffective society’s disaster response systems are. From these 5 tragedies, I combined my insight with the motivation of cutting these ghastly losses, and my passion for engineering with the relentless perseverance to solve incoming problems to yield the brainstorming and design that created the Robust Adaptive Network.**
      1. *Describe when you or someone you know experienced the problem*
2. **Your Impact:** What are your plans for the future of your innovation and growing your team and impact? (1400) [plan for future, growing team, engagement]
   1. RAN possesses the unique feature of being a commercially viable product. This is because, while many RANs will be kept on standby for emergencies, a separate RAN can be hired by private clients to assist in events like conventions, remote construction, faraway research, etc. This will generate revenue for RAN which will be fully reinvested into prototyping and scaling, thus repeating the cycle. In this way, with initial investment, RAN also proves to be financially feasible, establishing a concrete path to scaling the invention.

While scaling up the invention, it will also be important to scale up the manpower. This is why RAN has many programs with educational organizations. RAN uses these platforms as a showcase, and acts upon this privilege with an open-door-philosophy, allowing any student, adult, investor, or spectator to join, learn form, and help in developing RAN, slowly building a team driven by passion.

In addition to these partner educational institutions, RAN is also supported by large sectors of the community. These organizations include the Mayor of Houston, HISD, Discobots, ION Houston, Taco Bell Foundation, Innovation Spark, and more. This list keeps growing as more companies recognize the impact and positive change that RAN brings to make a more thriving and healthy planet. This allows RAN to constantly expand its boundaries of positive change.

* + 1. *Goals*
    2. *Activate more young people*
    3. *Current State of RAN*
    4. *Success measurement?*
    5. *Prototypes?*
  1. **RAN is currently in the manufacturing phase. RAN has well-made engineering models made, is well-prototyped, and is being built in various fabrication labs to manufacture the robots. RAN currently has the goal of having a 4-robot network (2 drones and 2 rovers) assembled and demonstrating algorithmic testing by the end of 2023.**

**To meet this, fortunately, RAN has been recognized by the community as an immense positive force, and has benefitted from manpower by local educational organizations, and support from business.**

**RAN has many programs with educational organizations. RAN uses these platforms as a showcase, and acts upon this privilege with an open-door-philosophy, allowing any student, adult, investor, or spectator to join, learn form, and help in developing RAN, building a team driven by passion. This team-building activates young people to join RAN and use their passions/experiences to shape the future of positive impact.**

**In addition to these partner educational institutions, RAN is also supported by large sectors of the community. These organizations include the Mayor of Houston, HISD, Discobots, ION Houston, Taco Bell Foundation, HCC, Innovation Spark, and more. This list keeps growing as more companies recognize the impact and positive change that RAN brings to make a more thriving and healthy planet. This allows RAN to constantly expand its boundaries of positive change.**

1. VIDEO: Include a YouTube Link for a 1-minute video that answers the following “I am stepping up to be a Changemaker because...”
   1. From a young age, my parents always told me to be independent. No matter if there was a problem at school, or a broken toy at home, it was incredibly important for me to try my best at solving it myself. So as I became older, and was able to use the gift of all my senses to observe the world around me, it came as a natural extension of my habits to try my best at solving problems I saw around me. Whether I was noticing the lack of proper disaster response, or was attempting to make sure that my acquaintances’, friends’, and family’s experience during natural disaster is not repeated to anyone else, the issues I saw called --for me to take action because *why not me?* If I see a problem and want to see a change, I can only rely on myself to make it happen. In the end, I am stepping up to be a changemaker because, as the challenge of this global issue beacons me, and as my vision of a better future guides me, I cannot do anything except lead the path to victory.
   2. Growing up, my parents instilled in me the value of independence. They encouraged me to solve problems on my own, whether it was a broken toy at home, or a conflict at school, it was incredibly important for me to try my best at solving it myself. In this way, as I am older, I found myself naturally drawn to solving problems that I saw around me. Whether it was the lack of proper disaster response or ensuring that my loved ones' experiences during natural disasters wouldn't be repeated, I felt a responsibility to take action. I realized that if I see a problem and want to see change, I can only rely on myself to make it happen, because *why not me?* I cannot sit on the side!

I'm stepping up to be a changemaker because I believe that I have a role to play in creating a better future. I know that the road ahead won't be easy, but I'm guided by a vision of a better world. I'm committed to doing everything I can to make it a reality, and I'm not afraid to pursue it. I'm driven by the challenge of solving global issues, and I'm confident that I can lead the way to victory.

1. **If selected as a winner, how would you use this opportunity and prize to further develop your project? (600)**
   1. RAN has passed the initialization, planning, and starter phases with its high-level 3D CAD models, sponsors, and prototypes. Continuing to build this project will require some additional funds and guidance.The opportunity of the prize money will be extremely beneficial to the procurement of tools, materials, and parts needed to build complete RAN systems. Additionally, the wisdom of leaders, mentors, and fellow changemakers from the Changemaker Lab will greatly benefit the development, sustainability, and growth of RAN through marketing, finance, legal, and management counsel.
   2. **Seed money will be extremely beneficial to the procurement of tools, materials, and parts needed to build RAN systems. After this, RAN possesses the unique feature of being commercially viable: while many RANs will be kept on standby for emergencies, a separate RAN can be hired by private clients to assist in events like conventions, remote construction, faraway research, etc. This generates revenue for RAN which is fully reinvested into further scaling, thus repeating the cycle. In this way, RAN proves to be financially sustainable, establishing a concrete path to scaling the invention.** Additionally, the wisdom of leaders, mentors, and fellow changemakers from the Changemaker Lab will greatly benefit the development, sustainability, and growth of RAN through marketing, finance, legal, and management counsel.
2. Is there anything else you’d like to share about your innovation? (600)
   1. - RAN is partnering with many communities, organizations, and businesses. This includes the Mayor of Houston, HISD, Discobots, ION Houston, Taco Bell Foundation, Innovation Spark, and more.
   2. -The Robust Adaptive Network is a novel solution to a pressing problem that almost no organization, from non-profits to governments, are handling. It is fully original invention.
   3. - Check out RAN's renders, letters of support, research papers, and more in the attachments!
   4. - Fusion 360 link (CAD) for the RAN Drone: https:// a360.co/3BJ99pI
   5. - Fusion 360 link (CAD) for the RAN Rover: <https://a360.co/3aXZGAr>

RAN will be further developed through a self-sustaining loop of prototyping and scaling. After an initial design gets scaled up, RAN possess the unique feature of being a commercially viable product. While many RANs will be kept on standby in case of emergency, a separate RAN can be hired by private clients to assist in events like conventions, remote contructions, farawaway research, etc. This will generate some revenue for the RAN which will be fully put towards prototyping and scaling, thus repeating the cycle. In this way, with initial investment, RAN combats its by prototyping changemaking ideas, scaling viable solutions, and self sustaining the positive impact through strategic commercial viability.

Your problem statement is well-organized and convincing. It clearly outlines the facets of the problem that people may not expect - communication and scarcity of information and supplies – during a crisis. You also do a wonderful job outlining the unique approach of RAN and each of its distinct features – camera and sensor data, delivering supplies, and being a communication tool.

Here are some reflections for revising your application and project plan:

In your project summary, rather than describing how the solution works, I suggest that you focus on sharing why this problem and solution matter. For example, “RAN is on a mission to [mission statement] for [your target audience or beneficiary]. Through [your solution], I am [your “why”] by [your “what”].

In your solution section (or in the Founding Story section), I wonder if you could include an example of the problems you outlined in the problem section in action. For example, could you share a story of a recent humanitarian crisis and how the situation unfolded? Then, you could present RAN, and how the vision of RAN could have played a role in aiding the crisis response.

Similar to my point above, I would love to know more about your personal journey in the Founding Story section. Can you describe a moment when you or someone you care about experienced the problem? Then, that story will blend well with your passion for engineering and perseverance for problem-solving.

In the Impact section, I would like to know the current state of RAN. What part of the innovation process are you in: research phase, design phase, testing phase, prototyping, or something else?

In the Impact section, I would love to see some of your goals over the next year. If you could accomplish 2-3 things in the next 12 months, what would you want to do? What impact do you want to have a year from now? Listing a few measurable and actionable goals, before sharing your strategy for commercializing your product and forming partnerships, would emphasize your commitment and changemaker quality.

Your commitment and eagerness for this work are evident and admirable. You are a driven leader, and I know you are headed for big things. Keep on changemaking!

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Hi Soumil,

Thank you so much for sharing Robust Adaptive Network with us! What an innovative and much needed solution to a problem that affects so many people! I was moved by your personal connection to the problem and find it extremely admirable that after experiencing natural disasters you have stepped up to make change! It is really impressive to read about the collaborations and partnerships you have built, we know that is an important part for sustainable projects. I have a few feedback points that I hope will be helpful as you continue to build your initiative!

I think the problem statement could be enhanced by one or two data points or examples to demonstrate the urgency and importance of this problem. Is there an example, study, or fact you could reference to shed more light on the scope and size of the problem? For example, “according to [news source],[data point] in [community / region] don’t have adequate [problem].”

I’d love to learn more about the prototypes that you’ve created and tested for RAN and the success you have seen so far with them!

I would think about how you can activate more young people to join you on your cause. Consider building a team as part of your plans for the future! How can you inspire others to get involved? What would it look like to build a team?

I am curious to know more about how you plan to measure your success. How can you measure your impact over time? What tools could you use to measure impact? Some suggestions: surveys, interviews, and any data collected during your activities. As a changemaker, it’s critical to listen and learn from your beneficiaries about what worked well and what can be changed to improve your model over time. You got this!

Fantastic work overall Soumil and thank you for stepping up to be a changemaker!