2022 MAKERS CHALLENGE

"ZERO HUNGER"
According to the FAO, in 2020, between 720 and 811 million people faced hunger (due to conflict, climate variability and extremes, economic slowdowns and downturns, and the COVID-19 pandemic). Nearly one in three people in the world (2.37 billion) did not have access to adequate food in 2020 – that’s an increase of almost 320 million people in just one year. Compared with 2019, 46 million more people in Africa were affected by hunger in 2020 (282 Million). Makers are challenged to end hunger in Africa by utilizing science and technology to develop solutions in their communities that increase food security and contribute to the achievement of the SDG 2.
To design or build a new service or product, teams can use the human-centered Design Thinking approach. If a team decides to redesign or improve an existing product or system, they must use the Whole System & Life Cycle Thinking sustainable design approach. Teams must present this model of their innovation and describe their team process.

The new requirement for 2022 is to use Matlab as part of building and designing solutions or processes.
Each team will have to send the following deliverables for judging:

- A description of the team’s Design Thinking Process or Whole System & Life Cycle Thinking process (French or English)
- Design and build a tabletop scale model
- Create a poster (French or English)
- Deliver a 5-7 min presentation (French or English)
Design Thinking Option

Design Thinking is a structured problem-solving process that will allow Maker teams to find an effective and meaningful solution to increase employment opportunities in their communities. Teams must go through each phase of the Design Thinking Process (Empathy, Define, Ideate, Prototype, Test/Feedback) then create a summary portfolio.

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<td>Prompt: Construct a point of view that is based on user needs &amp; insights. The team has analyzed the information gathered in the Empathy phase to create a problem statement that defines the target user and their true need.</td>
<td>Prompt: Brainstorm and come up with creative solutions. The team has generated a high volume of ideas comparing and grouping possible solutions, many of which include innovative and non-traditional ideas. The final design solution is well justified and highly likely viable.</td>
<td>Prompt: Build a representation of one or more of your ideas to show to others. The table-top model is clearly and fully explained, with enough detail to assure that nearly/all design requirements are addressed. The model shows great display of imagination, creativity, aesthetics and workmanship.</td>
<td>Prompt: Return to your original user group to test your ideas for feedback. The team has developed a testing plan that addresses nearly/all of the design requirements. The team has provided a logical, well-developed explanation regarding the potential effectiveness of the design.</td>
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Whole Systems & Life Cycle Thinking Option

Teams may apply the sustainable thinking approach of Whole Systems & Life Cycle (WS+LC) to take an existing product or service and redesign it to have a better environmental impact while creating job opportunities for African youth.

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<td>Prompt: Prioritize areas of redesign by considering the Life Cycle impact of the current design. The team must consider the stages involved in the life of the product or service such as material extraction, manufacture, transport, use and disposal. Teams must indicate the biggest opportunities and priorities for improvements.</td>
<td>Prompt: Generate creative alternatives for the product, given the established priorities. The teams must consider the whole system of the product/service and generate a high volume of ideas for solutions including solutions for identified opportunities and top priorities.</td>
<td>Prompt: Reflect on the impacts of the redesigned product/service including projected job creation. The team must choose a good set of design solutions to compare and select the best design, providing a clear description of it. Teams should reflect on the redesign including threats and opportunities, projected job creation and impacts (such as social, cultural, political, economic, ecologic impact).</td>
<td>Prompt: Build a table-top model of one or more of your ideas to show others. The team must clearly and fully describe a table-top model, with enough detail to assure that the problem identified in the problem definition phase has been addressed. The model should show great display of imagination, creativity, aesthetics and workmanship.</td>
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Model of Innovation

Makers teams are tasked to create a model that describes their innovation. The model does not have to be on all aspects of the proposed solution but can be on specific sub-components. The model should show a great display of imagination, creativity, aesthetics and workmanship. Teams must bring their model to the competition; therefore, make plans on how to transport your model on plane/car to PARC.

The model has requirements that teams will need to follow:

- Use Matlab as part of building and designing solutions or processes
- Model material cannot cost more than $200 USD. Teams must provide a material expense list. Teams must estimate the value of any scrap and donated materials used to ensure it does not exceed the $200 limit.
CREATE A POSTER

Makers teams will have the opportunity to show off their hard work and creativity by developing a poster. It is recommended to use a tri-fold poster but teams can use a standard poster board. Content of the poster can include information on:

- Team members
- Home country and/or city
- Your Future Healthy City Idea/Proposal
- Problems faced during the development of model
- Other items that the team wants to share
Makers teams must deliver a 5-7 minutes presentation during PARC in Senegal about their project. All team members are encouraged to have a speaking part during the presentation.

Team members can use items such as their model or poster during the presentation. This is the team's moment to shine in front of hundreds of spectators and supporters... be creative and make the presentation exciting!
How Will Teams Be Judged?

Teams will be judged on each of the following deliverables on a scale of 0-10:

- Description of Design Thinking or Whole Systems & Life Cycle Thinking Process (content, aesthetic/organization)
- Model (idea, imagination, creativity, aesthetics, workmanship, within budget)
- Presentation (content, clarity, team work)
- Poster (content, aesthetic/organization)

Each deliverable will receive a score of (10)- Exemplary, (8)-Competent, (6)- Developing, (4)- Marginal, (2)-Needs Major Support.

The portfolio should include an expense sheet documenting all costs related to the model. Expenses may not exceed $200 USD. Teams should be prepared to answer questions about their portfolio from the judges. The team loses 1 point from their score for every dollar over $200.

Teams must submit an electronic copy of their portfolio to parcrobotics@senecole.com by 25th June 2022 and bring a physical copy to PARC. Every day that the submission is late, the team loses 1 point per day from their score.
# Judging Rubric

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<td><strong>Exemplary</strong>&lt;br&gt;Strong evidence of meeting or exceeding the objectives. Strong evidence of meeting or exceeding expected effort. Response is compelling and specific, responding effectively to all parts of the prompt. Response is enriched by critical thinking, creativity, and insight.</td>
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<td><strong>Competent</strong>&lt;br&gt;Evidence suggests adequate meeting of objectives. Response is detailed and specific, responding to all parts of the prompt. Shows critical thinking, and/or creativity. Evidence suggests appropriate effort has been applied to this task.</td>
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<td><strong>Developing</strong>&lt;br&gt;Evidence suggests some objectives are met. Responds to all parts of the prompt but response lacks 1-2 important details. Shows some critical thinking and/or creativity. Evidence suggests some effort has been applied, but greater effort would have improved the response.</td>
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<tr>
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<td><strong>Needs Major Support</strong>&lt;br&gt;Evidence suggests failure to meet desired objectives. Response is off topic or largely incomplete. No critical thinking or creativity evident. Evidence suggests no serious effort has been applied to this task.</td>
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## Penalties

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<td><strong>Late Penalty</strong></td>
<td>Teams must submit an electronic copy of their portfolio to <a href="mailto:parcrobotics@senecole.com">parcrobotics@senecole.com</a> by June 15 and bring a physical copy to PARC. Every day that the submission is late, the team loses 1 point per day from their score.</td>
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DÉFI DES MAKERS 2022

"ZERO HUNGER"
Pour concevoir ou construire un nouveau service ou produit, les équipes peuvent utiliser l'approche du Design Thinking centré sur l'humain. Si une équipe décide de reconcevoir ou d'améliorer un produit ou un système existant, elle doit utiliser l’approche de conception durable Whole System & Life Cycle Thinking. Les équipes doivent présenter ce modèle de leur innovation et décrire leur processus d'équipe.

La nouvelle exigence pour 2022 est d'utiliser Matlab dans le cadre de la construction et de la conception de solutions ou de processus
Livraux du concours

Chaque équipe devra envoyer les livraux suivants pour jugement :

- Une description du processus de Design Thinking ou Whole System & Life Cycle Thinking de l’équipe (français ou anglais)
- Concevoir et construire un modèle réduit de table
- Créer une affiche (français ou anglais)
- Faire une présentation de 5-7 min (français ou anglais)
Option de pensée conceptuelle

Le Design Thinking est un processus structuré de résolution de problèmes qui permettra aux équipes Maker de trouver une solution efficace et significative pour augmenter les opportunités d'emploi dans leurs communautés. Les équipes doivent passer par chaque phase du processus de Design Thinking (Empathy, Define, Ideate, Prototype, Test/Feedback) puis créer un portfolio récapitulatif.

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**Option Systèmes entiers et réflexion sur le cycle de vie**

Les équipes peuvent appliquer l'approche de pensée durable de Whole Systems & Life Cycle (WS+LC) pour prendre un produit ou un service existant et le repenser pour avoir un meilleur impact environnemental tout en créant des opportunités d'emploi pour les jeunes Africains.

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Modèle d'innovation

Les équipes de Makers sont chargées de créer un modèle qui décrit leur innovation. Le modèle ne doit pas nécessairement porter sur tous les aspects de la solution proposée, mais peut porter sur des sous-composants spécifiques. Le modèle doit montrer une grande démonstration d'imagination, de créativité, d'esthétique et de fabrication.

Les équipes doivent apporter leur modèle à la compétition; par conséquent, faites des plans sur la façon de transporter votre modèle en avion/voiture jusqu'au PARC.

Le modèle comporte des exigences que les équipes devront respecter :

- Utiliser Matlab dans le cadre de la construction et de la conception de solutions ou de processus
- Le matériel du modèle ne peut pas coûter plus de 200 USD. Les équipes doivent fournir une liste de dépenses matérielles. Les équipes doivent estimer la valeur de tous les déchets et matériaux donnés utilisés pour s'assurer qu'ils ne dépassent pas la limite de 200 $. 
**CRÉER UNE AFFICHE**

Les équipes de Makers auront l'opportunité de montrer leur travail acharné et leur créativité en développant une affiche. Il est recommandé d'utiliser une affiche à trois volets, mais les équipes peuvent utiliser un tableau d'affichage standard. Le contenu de l'affiche peut inclure des informations sur :

- Membres de l'équipe
- Pays et/ou ville d'origine
- Votre future idée/proposition de ville saine
- Problèmes rencontrés lors du développement du modèle
- Autres éléments que l'équipe souhaite partager
Présentation

Les équipes Makers doivent faire une présentation de 5 à 7 minutes pendant le PARC au Sénégal sur leur projet. Tous les membres de l'équipe sont encouragés à prendre la parole lors de la présentation.

Les membres de l'équipe peuvent utiliser des éléments tels que leur modèle ou leur affiche pendant la présentation. C'est le moment pour l'équipe de briller devant des centaines de spectateurs et supporters... soyez créatifs et rendez la présentation excitante !
Comment les équipes seront-elles jugées ?

Les équipes seront jugées sur chacun des livrables suivants sur une échelle de 0 à 10 :

- Description du Design Thinking ou Whole Systems & Life Cycle Thinking Process (contenu, esthétique/organisation)
- Modèle (idée, imagination, créativité, esthétique, fabrication, dans les limites du budget)
- Présentation (contenu, clarté, travail d’équipe)
- Affiche (contenu, esthétique/organisation)

Chaque produit livrable recevra une note de (10)- Exemplaire, (8)- Compétent, (6)- En développement, (4)- Marginal, (2)- Nécessite un soutien majeur.

Le portefeuille doit inclure une feuille de dépenses documentant tous les coûts liés au modèle. Les dépenses ne peuvent pas dépasser 200 $ US. Les équipes doivent être prêtes à répondre aux questions des juges sur leur portfolio. L’équipe perd 1 point de son score pour chaque dollar supérieur à 200 $.

Les équipes doivent soumettre une copie électronique de leur portfolio à parcrobotics@senecole.com avant le 25 juin 2022 et apporter une copie physique au PARC. Chaque jour où la soumission est en retard, l'équipe perd 1 point par jour de son score.
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