**LETTER OF TRANSMITTAL**

Tasked by the US Department of Commerce and the US Department of Energy to stimulate new research opportunities surrounding emerging technologies, our team decided to learn more about the global problem of food waste. In synchronization with the mission of the awarded grant, the objective of this proposal is to improve the quality of life for less fortunate members of the community, while indirectly benefitting the worldwide population. Choosing a sustainable solution that is scalable to anywhere in the world once optimized, was a primary priority of this work. Solving a global problem is evidently not simple, so approaching the problem with a flexible solution allows for a wide ability of applications, depending on the case. Please be advised that the proposed solution is attached below, starting with the Executive Summary.

Food is an essential element of life. Many people lack food, others experience an abundance. Research surrounding food insecurity was conducted at and around the University of Florida during the Summer B term through surveying students, communicating with faculty coordinators, and using the internet. Five weeks of data were merged and analyzed to reveal important findings which brought the proposal to light. Using proven technologies, the plan of the proposal is to connect overproducing entities with underfed members of the community. Based on our own data, it is clear that this is what most affected survey respondents would like to see. Furthermore, external organizations have tested similar solutions, leading to successful outcomes.

To implement the proposal, only slight modifications need to be made. The proposal assumes that there is an abundance of food in close proximity to a community of food-insecure community members, which is typical of a college campus. A text message notification system allows for food-insecure community members to be a text away from food producers. The food producers will be able to mass market any excess food that would otherwise be thrown away, to benefit underfed people, and limit the amount of waste that will be produced by excess food, reducing waste collection, greenhouse gases, and overflowing landfills.

This project has already been attempted by other institutions, including Colorado State University. Based on their released data, it is apparent that the solution provides high value to many members of the community. Especially considering the initiative was re-launched following the worldwide COVID-19 pandemic. Forgoing a proposal of such simplicity and proven success would do more harm to the community than good. There are undernourished people, and overflowing landfills that will continue to worsen until action is taken.

To take action, contact **[insert contact number]** \*\*\*Charles Richardson (5616603885)

**EXECUTIVE SUMMARY**

Our global community possesses a resource imbalance. In many areas around the world, undernourishment is the status quo; yet in most other areas, a large proportion of food is lost or wasted, contributing to larger problems than just hunger, impacting the wellbeing of our society and the planet. The life cycle of most food is short, environmentally sensitive, and specific while the supply chain of food resources is long, complex, and regulated. This difference creates challenges in management and operation, which are detrimental to the efficiency of the industry.

On a smaller scale, institutions such as colleges play a large role in food supply for their members. Food hotspots such as dining halls often prepare food for thousands of students every day, without a guarantee of how many students will show up. Given the complexity of a student’s routine, it is nearly impossible to accurately predict the number of students that will go to the dining hall, and the amount of food each student will eat. For this reason, dining halls commonly produce a little more than what is expected, resulting in unconsumed food at the end of the day. Similar to the global scale, there are students without access to the dining halls, with less opportunity, who go hungry. Therefore, on one side of the campus, excess resources are going into the garbage, and on the other side of the campus, the well-being of resource-lacking students is declining.

To increase the severity of these problems. There exist members of the community that are desperate enough to search for food by searching for leftovers and discarded food. This leads to misallocated time, food contamination, and the most severe, food poisoning. The long-term effect of discarding excess food while there are hungry members in the community is grim. Leading to non-favorable outcomes for more than just the hungry members.

Given that food is required by every living being, this problem is worldwide. Solving a worldwide problem is clearly a tremendous challenge, requiring the synchronization of many systems to ensure efficient outcomes. Therefore, it is more rational to limit the scope of the problem to a subset of the population, then expand operations once an optimal solution is reached. For our plan, we chose to target the university campuses, collecting data from the University of Florida student population.

To achieve an equilibrium between overproducing entities and undernourished students, a text notification system can connect both parties, allowing effective communication for locating excess food resources prior to being discarded. On any given day, entities will prepare food for the students with access to the location. As closing time approaches, a coordinator will determine if there is excess food to distribute and if so, send a text message. Included in the text will be a location and time range for pickup as well as a reminder to bring their own container. Students that have opted into the notification system will receive the message.

The notification system will be available for any student, who will be required to show their ID to pick up food. The quantity of food available for each student will depend on how much excess there is, the size of the container the student brings, and the remaining time of distribution. Upon expiration, the remaining food will be discarded. The amount of food that is discarded after the distribution is less than what it would be without the notification system, and less fortunate members of the community would be benefitted, at a relatively slim additional cost.

Using a text message notification system, the overproducing entity has the freedom to notify at will given the resources. There are no constraints to a schedule, routine notifications, or required amounts of distribution. The only significant changes to the way the system works now are: approximately an hour before closing time, an executive decision is made whether to send out a message or not, then 30 minutes prior to closing an employee assists underfed members to collect their portion of food. The rest remains the same.

Under this system, kitchen managers have a better opportunity to fine-tune their production quantities, given at the end of the day, any student is able to collect food. If food remains after less fortunate students have collected excess amounts for free, it is clear that too much food is being produced. Furthermore, schools will have the opportunity to reduce their waste rate by reallocating resources prior to sending them to landfills, which has become a priority for institutions around the world. Finally, undernourished students will be exposed to nutritious food at no cost apart from their time and patience, experiencing an improved quality of life.

Using technology to solve problems is human instinct. Similar initiatives have been attempted around the United States, including Colorado State University’s Rams Food Recovery Program, which saw 500 students subscribe on the first day alone. There is overwhelming evidence that solutions are needed to problems surrounding food production and consumption, and existing concepts that are proven to work, as shown by Colorado State University. The important question to ask is, when will somebody decide to solve these problems?