Team: P20762 **Engineer: Keshab Bhattarai**

What were the outcomes of the prior phase?

1. What did I plan to do?

We planned to come up with a final design using the components that are easily accessible in Colombia. To do this, we would need to come with different ideas and concepts and use Pugh analysis to generate the best idea.

2. What did I actually do?

We were able to generate eight-ten ideas for our overall system. These ideas were considered using previous team's project, Aquaponics in Webster High School, and the climate this project is being delivered to. After the generation of our ideas we used pugh analysis to generate the best concepts. Finally, we came up with one solution with a backup solution if our proposed solution does not work as planned.

3. What did I learn? How were plan and reality different?

I learned that new ideas emerge as we get deeper into the project and it is always good to have a back-up concept as sometimes the priority solution does not go as planned. Our plan initially was to use a waterwheel to create a continuous water flow but as we did more research, we found out that there is not enough force to move the waterwheel for the cycle to be continuous.

Team Level for next phase

Our plan for this phase was to focus on further development of our systems design proposal, with focus to our high-risk components, the rope pump and water wheel. We plan on expanding upon our feasibility studies for both our high-risk components as well as further development of our architecture and development of the support system for the filter and PVC piping. We also expect to further our prototyping of nitrate cycling by beginning to use live goldfish in our tests and monitor their vitality. By the end of this phase, we plan to have completed feasibility studies of our rope pump and water wheel system

What do I plan on doing to ensure that my team has a successful review at the end of the next phase?

As a Lead Engineer and one of the two mechanical engineers in the team, I plan to do in depth research about the flow rates and energy loss for our system and get started with CAD design. I will continue to bring more concept and system ideas to the group, so we are on track.

What is standing in my way of meeting my next phase goals?

1. Lack of understanding of feasibility of rope pump and wheel system. Delegated to Thomas and Kesh to oversee initial prototyping and feasibility requirements.
2. Unclear on CAD designing
3.Unclear final concept to move forward with and prototype.