Fish Tank Monitor Week 13 Updates

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Dear Project Partner,

In the time since our last update, our team has worked on flushing out our Fish Tank Monitor's design and are now building verification. We have finalized our blocks and requirements and used these to develop our project further. These have allowed us to align ourselves better with the goals of the Fish Tank Monitor and avoid extraneous work. These requirements will remain the same throughout the rest of the project's development unless drastic changes are required.

One design aspect that has changed drastically is switching from a conveyor belt system to a rotating chamber system to switch between various test strips. This change has been made to increase ease of use on the user end and decrease design complexity. This way we can simply rotate the chamber to a new test strip and avoid any loading issues. There will be hidden drainage in each chamber as to avoid a build up of water at any given time. This also simplifies our block diagram as it replaces the conveyor belt and magazine with just rotating chambers. This increases the complexity of the color sensor enclosure, as now it must be able to move the color sensor up and down to read all tests on the test strip instead of the strip moving itself.

On another note, we have been progressing steadily towards our final designs for the required custom circuit board and device enclosure. We have decided to focus on repairability for this initial prototype, as this will allow us and any user to swap out a sensor if necessary. The enclosure will be made of food safe materials, so no harmful plastic chemicals will have any possibility of leaking into the fish tank itself. The enclosure will also be modular, allowing for certain part changes to be made via adapters and connectors.

We have continued work on the development of the user interface and control of the temperature and color sensors. Through the use of the Arduino IDE, we have been able to program our e-ink display to showcase multiple figures. The figures include the date, the time, the temperature, and notification messages. More pages will be added to fulfill the entire user interface. We have received the temperature sensor and have implemented this into our programming to output the temperature in either celsius or fahrenheit and have obtained the color sensor and developed code to program it, though we have yet to begin testing.

Our team consistently convenes on a weekly basis, depending on our task list to stay aligned with our objectives. We adhere to a consistent meeting format each week, ensuring that we stay focused and have achieved success in maintaining our productivity. Each meeting imparts valuable and essential insights, setting a positive tone and providing the necessary guidance for the upcoming week's tasks.