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Welcome students, TAs and professors, to our i2e final presentations. We request that you all sit back and relax as we take you on a journey through the foundation of HAM Tech and the development of project HydroHub.

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HAM Tech was founded in February 2012, with the sole purpose of providing the means to keep people healthy using myriad technological innovations

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We have won various awards for our previous products such as the Zero calorie soda and our water filtration straw.

And we are proud to be serving many clients, our main one being the United States Department of Health and Services.

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My name is Helal Chowdhury, the chief of hardware and circuitry.

My name is Min Kim, chief of programming and development

And my name is Abe Thomas, and I am the chief of design and production

We find that nowadays we have a plethora of necessities in our daily lives to keep us functioning. But since the beginning of life on this planet, there has been one thing that we have always required above all.

And that one thing is water.

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But the human body requires a certain amount of water to maximize personal health.

It's great that here in America we have clean water at our disposals whenever we want. But even with that, the average water intake of Americans is merely 4.5 cups daily.

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Even losing 1% of total water content can harm our cognitive ability and mood

Unfortunately, the only widely used solution of keeping track of our hydration goals, is to use apps which require you to manually enter your hydration data throughout the day

But now imagine. Imagine being able to drink water at any time, and knowing exactly how much closer you’ve gotten to your daily goals.

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Our goal at the beginning of project hydrohub was to find a way to track water intake in an efficient and innovative way.

HElal talk

Initially, we began to focus on the necessary processes and monitoring systems for this project, and in doing so found that we needed a few specific materials.

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Primarily, we needed a flow rate monitoring system that could transform the movement of water out of the bottle into electronic data.

Next, we required a means of broadcasting this to the user, so we decided to use a small LCD display that could fit right on the side of the bottle to inform the consumer of their progression in their daily goals.

Now we also wanted to ensure that the bottle can be placed easily when not being used, because as we learned from out customer interviews, water bottles often get knocked over, possibly causing a mess. Therefore, we created HydroHub in such a way that it can be placed horizontally or vertically on any flat surface.

Finally, to ensure that customers can drink comfortably when the water is at a nice cool temperature, we have also installed a temperature sensor that constantly displays water temperature in the LCD display.

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All these components have been housed in a singular prototype design. Now, for the purposes of this course, we increased the scale and created a bulging compartment for the circuits and arduino board, but the basic function of our final product would work fairly similar to this.

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As you can see. Our product has a lot going on behind the scenes. First we have two sensors, a flow meter to track water intake, and a thermistor to track temperature. These devices are capable of collecting raw data from inside the water bottle at all times thanks to our waterproof design. This raw data is then transferred over a wired connection into our arduino board, where the data is then processed by our program into a clean, displayable, and accurate format. This new information is then immediately shown on the lcd display in real time, while also be transmitted to our app over bluetooth.

Using a pinwheel design, our flowmeter will spin upon being hit by water. Magnets would track and send electrical data to the system to be converted into mL via hall effect. Now we would like to demo how the product functions

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Upon opening the HydroHub app, the user is faced with two options to scan and connect to their device. Once scanning for nearby bluetooth devices, and selecting their water bottle, the app registers the current status of water intake and continuously updates in real time as the user drinks water. The app then notifies you when your daily goal has been met, which for the purposes of this demo has been set to 300 mL.

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Wrong. We at Ham tech were able to minimize expenses by utilizing a $10 flow sensor and temperature sensor to provide a product that can be manufactured at a low cost on a grand scale, with further costs simply being used to improve product quality.

Now including our labor cost, which is $50 per hour for a total 120 hours, our total labor for the three of us sums up to 18,000 dollars.

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Throughout the past few months, we’ve stuck to a strict project schedule, designating individual tasks throughout the team.

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So what are some of the advantages of our device?

First and foremost, our flow sensor was tested and proven to be highly precise with an precision of 94%

On top of that, the entire prototype was low cost, as previously mentioned

And most importantly, it is far more efficient and easy to use than conventional water tracking methods where you’re required to manually measure and input your water intake throughout the day.

But even with all these great features, we are working tirelessly to improve HydroHub for our clients, making sure it is constantly up to date with the latest innovations.

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For our final design, we intend to utilize a PCB and Arduino Mini in order to minimize the size of the product. This would help us get rid of this bulging side, allowing it to be more cylindrical with a better grip. (Show internal wiring) (Min)

In terms of its functionality, we plan to embed a larger interactive display to make the HydroHub more user friendly.

This would allow users to set goals and would give frequent alerts to update them on their status and how far they have left to reach their goal.

They would also be able to view more data on the screen including things like time, weather and water purity.

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Here is our tentative design for our final product featuring a sleek, more modern aesthetic. With these new features HydroHub would be one of the most innovative smart devices yet

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If you need further confirmation that HydroHub is the best in the market, just take a look at our customer satisfaction of 99.7%

With over 98,000 units sold in just one month since its release, HydroHub has proven to be drastically more efficient than its competitors in terms of its accuracy and ease of use.

This is hydration

This is innovation

This is the future

This... is HydroHub