Hi Team X! I am Valerie Peng and I am the Lead Mechanical Engineer at a sustainable agriculture startup called FYTO. I was the first employee and I love making designs and machines come to life. I will be providing feedback on four principles: Desirable, Novel, Impactful, and Buildable.

**General**: This is a great example of a physical technology that includes a physical, electrical, and maybe eventually even a software component. Your ideas were also clearly communicated in the presentation, well done!

**Desirable**: I liked how the team presented the potential ideas and the fact that Omar liked the OMAR the most. It is very important to incorporate your user and customer feedback, nice job! The team posed a question about detecting all objects - have you narrowed down what the main objects that Omar has trouble with are? It may be useful eventually to detect all objects, but making a product that works in a specific scenario could be more helpful in the end.

**Novel**: The product is certainly novel, as there are no popular competing products out there! I was reminded of these products which I saw on TV years ago: <https://www.livescience.com/48760-vibrating-vest-blind-navigation.html>

While there has been interest in products like these, there really don’t seem to be many commercially available and it would make an impact for customers if they could purchase one!

**Buildable**: The idea certainly seems buildable! While there are no commercial products, the team may be able to gather prototype ideas from academic sources, such as: <https://www.irjet.net/archives/V8/i5/IRJET-V8I5516.pdf>

It will be important for the team to continue to focus on their end user as they prototype to figure out what areas to focus on and which to let go of. For instance, for range detection, you may want an ultrasonic sensor with a narrower beam which faces directly in front of the user’s face - this would likely be more accurate, although you could not do path planning. There are many tradeoffs in inventing and designing products, and the team seems to have a grasp on some of these - nicely done!

As far as waterproofing, you could consider having a waterproof ultrasonic sensor (such as: <https://www.amazon.com/diymore-Waterproof-Ultrasonic-Measuring-Transducer/dp/B01J5KZU8M>) on top of the cap, and the electronics protected either in a case on the back or somewhere in the user’s pocket. Has the team thought about whether a standalone cap or a device that can attach to any hat would be better? How much does the form factor or size affect the user?

**Impactful:** This idea certainly would have a broader impact! I think many visually-impaired or blind people would benefit from this product, and perhaps further even in industries where there is high risk of concussion injury (such as mining or construction).