TED Talk: Update #3 Script

We are Team 4 and we are doing the millimeter-wave RADAR to detect the moisture content of green coffee beans.

Over Spring Break we basically just did a bunch of testing as well as created some additional programs to try and extract the permittivity from the beans. Since then, we had a conversation with our Industry Sponsor about potentially skipping the permittivity step and just relating the I/Q amplitude data we’re getting to moisture content, which he was on board for, so that’s the route we’re now going.

Other than that, our biggest update so far is probably that we’ve narrowed down which prototype we are going to proceed with - we were working in parallel on multiple prototypes but were able to rule out all of them except for one. We may refine it a little bit to fit particular lenses, so we’ll be figuring that out later today.

Our biggest challenge so far has been variability in the waveforms we’re observing. Even after creating a pretty well-controlled test bed, we’re still seeing a lot of variability in the amplitudes across beans with similar moisture contents. So currently, we’re having a discussion about how to proceed from there - we’ve been playing around with taking multiple readings across multiple tests, and averaging the results, but with the variability in the values we’re obtaining, this method alone hasn’t allowed us to discern one bean’s moisture content from another’s.

So moving forward, we are going to lean into machine learning - we just had a conversation with our Faculty Advisor earlier today who’s a big proponent of machine learning and gave us some tools and resources to get going with that. Last thing is documentation - we have a lot of good preliminary documentation, but we’re now going to start compiling and uniformly formatting all of it, to prepare for the final report.

That’s about all we got.