Re: Meeting follow up coming soon

Frank Bustamante <frank.bustamante@ucalgary.ca>
Tue 2023-10-17 5:32 PM
To:Sims, Zach Z <zach.z.sims@global.lmco.com>
Cc:Anhela Francees <anhela.francees@ucalgary.ca>

Good Afternoon Zach!

Hope you're doing well this week. We wanted to follow up with you on the answers to the questions that we asked you during last week's meeting on Thursday.

Please let us know if you have any updates for us, thanks.

Regards,

Frank. Bustamante
Department of Electrical and Software Engineering
University of Calgary

From: Anhela Francees <anhela.francees@ucalgary.ca>
Sent: September 25, 2023 11:23 AM
To: Sims, Zach Z <zach.z.sims@global.lmco.com>
Cc: Frank Bustamante <frank.bustamante@ucalgary.ca>
Subject: Re: Meeting follow up coming soon

Hi Zach,

Thanks for your informative email. Yes, this is more than enough to get us started on component selection.

I agree that the first part of the project should be focused on sourcing and integrating components to get a flying drone. This way we also get a chance to see and better understand how drone electronics interact with each other as well as the hardware and software to perform basic functionality. We will also be better prepared for the next phase of customization and optimization for a specific environment.

We will get back to you with any questions that come up after we discuss internally and bring it up to the rest of the group tomorrow. We will definitely have more specific questions/comments when we meet on Thursday.

Thanks for your time and effort getting us answers and clarifications.

Best,
Anhela

From: Sims, Zach Z <zach.z.sims@global.lmco.com>
Sent: Monday, September 25, 2023 10:19:43 AM
To: Anhela Francees <anhela.francees@ucalgary.ca>; Frank Bustamante <frank.bustamante@ucalgary.ca>
Subject: FW: Meeting follow up coming soon

[△EXTERNAL]

Forwarding my email from Friday as it looks like it went out right before our internet outage, so hopefully this one goes through lol.

From: Sims, Zach Z (CA)
Sent: Friday, September 22, 2023 4:54 PM
To: 'Anhela Francees' <anhela.francees@ucalgary.ca>
Subject: RE: Meeting follow up coming soon

Hey guys,

So I chatted with a few of the integration folks here that are more electrical focused and they gave me their takes. Now that I have a bit better of an understanding of what a realistic scope looks like, I think this should be the path forward:

For the first cut, the focus should be on sourcing and integrating early. If getting something to fly is the core thing that needs to work, start with just the bare minimum requirements for that. This means not to worry too much about designing and creating your own individual components and PCBs for the first bit, instead focus on determining what specific hardware would be sufficient for what the vehicle needs to do, and sourcing it. Once you have done your research and have decided on the required components, you will need to source them (I have asked how specifically we will be paying for that, should have an answer on Monday) so that you aren't ordering parts in January that might arrive in March. In the down time between sourcing hardware and actually having it arrive, continuing to learn more about PCB design as this will become relevant later in the project. For now though, the first milestone or piece of progress that would be good to see is the combined board + components that actually send out the right signals as needed. Again, this is just a first cut that you will be iterating on and improving, so even if you source it all from a drone kit that looks like it has the components you need, getting things actually integrated and building up from there would be the best place to focus. As the project moves along, that is where we will be getting more into optimizing for particular environments and that's where the potential for custom components and PCB design will come into play. Throughout the project you guys may have downtime where you are waiting for other members of the team to integrate their work or on parts to arrive or on any number of other things. These are the times to continue looking at what optimizations would help and to continue to learn more about what custom components you could realistically design that would help the project.

TL;DR: While custom components and PCBs are a great way to optimize the vehicle for particular environments, the focus early on in the project should be to just get something that is capable of flying and transmitting the information you need to transmit. Make a decision on what components that already exist suit your case best (i.e. what motors, boards, what to use for a mission computer to run the autopilot, etc..), then source and combine these components so that you have a fully integrated board that can fly the vehicle (even if just in a basic way). Once you have those squared away, the customization and optimization are the next step.

I am also discussing with a few other people in my office about coming and joining me for the next meeting (although that may have to be virtual), and they are also software engineers however they both have lots of experience on the drone-building side of things rather than just the programming parts, so that will hopefully help to answer some questions and provide more guidance as well.

I am still trying to learn about what sorts of tooling the other site uses for some of their PCB design, as well as gripes that people have, but that info is harder to find as our office is about 30 devs and 4 integrators haha.

Please let me know if this gives you enough to go off of, and if it does not I will make this my top priority as I do not want to leave you guys hanging too long. I hope you have a great weekend!

Zach

From: Anhela Francees <anhela.francees@ucalgary.ca>
Sent: Monday, September 18, 2023 3:32 PM
To: Sims, Zach Z (CA) <zach.z.sims@global.lmco.com>; Frank Bustamante <frank.bustamante@ucalgary.ca>
Subject: EXTERNAL: Re: Meeting follow up coming soon

Hi Zach,

Thank you for reaching out. No worries, we're all new to this especially that the project you supervised in the past was more software focused. The important thing is that we are all getting things moving; you are reaching out to people who can support us, and we are learning and researching more about PCB design software in the meantime.

We don't have questions at the moment beyond what was discussed during our meeting.

Thanks for your efforts and we look forward to hearing from you.

Best,
Anhela

From: Sims, Zach Z <zach.z.sims@global.lmco.com>
Sent: Monday, September 18, 2023 2:48:05 PM
To: Anhela Francees <anhela.francees@ucalgary.ca>; Frank Bustamante <frank.bustamante@ucalgary.ca>
Subject: Meeting follow up coming soon

[△EXTERNAL]

Good afternoon sparkys (do people still call electrical students sparkys?)

Just wanted to let you guys know that I am following up with some of the folks at my site and the other site so that I can give you guys a better scope of what to do here, and that Im just waiting on some answers.

Really I just wanted to let you know that I haven't forgot about you guys and that Im sorry for not catching the scoping issue earlier (in retrospect I feel like everybody left the meeting feeling like they had a sense of direction and where to go from here except for you two, and that's completely on me). Also, if there is anything specific that you guys want me to ask the electrical folks here that you didn't get a chance to mention in our meeting, please let me know in a reply on this thread and Ill pick their brain on it. Eventually I want to bring in some of the other domain experts from my office that are less software focused, but Im still sorting out who/when/how that will look like.

Best,

Zach Sims
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