*Flora Communications* Risk Audit

# Assessing Original Risk Assessment

Our original Risk Assessment (Appendix) has been an accurate document and effective in how we handled our project risks during the semester. Below is an assessment of identified risks 1 through 9.

1. PCB will contain schematic/routing errors

We were able to avoid this risk by our planned response of all team members proof-reading the schematic and PCB design board by all prior to ordering, as well as undergo design revisions advised by Justin Curran. This scheduled time increase prevented a high impact risk from occurring. Our PCB prototype exceeded expectations and we did not have to undergo further design revision and PCB ordering.

1. Initial PCB design will take longer than scheduled due to unanticipated revisions.

Our initial design took one week longer due to unexpected revisions. The impact of this was low, and of medium probability as expected, and accepted as planned. An unforeseen delay was that the prep-room would only be placing PCB order every two weeks, so this delay pushed our scheduling a further week for 2 weeks delay total. The outcome was as expected however with just a minor time increase and scheduling was altered as necessary for the project tasks.

1. PCB order will be lost by DHL shipping

This risk was anticipated to be ‘low’ in every category and proved to be ‘low’. The PCBs even arrived ahead of schedule from JLC PCB. This risk will not be noted in the future now that we and our classmates have had successful dealings with JLC PCB. In this future as this risk appears to be below the level ‘low’ probability it will not be noted due to its low likelihood of occurring.

1. The switching power supply will interfere with radio and data TX/Rx signals.

This would have been a high impact risk had it occurred. Our research into the primary power supply we selected, EMI filter design, as well as our back-up power supply module we included in our prototype board, mitigated the likelihood of this risk to ‘low’ rather than the ‘medium’ we initially assessed it at.

1. Development of prototype software will take longer than estimated.

Our software development was on schedule as our GitHub tasks were updated to adapt to other assignments and deadlines. This risk was avoided due to our frequent meetings and dynamic scheduling updates.

1. Supplying batteries for our prototype is too costly.

This did turn out to be the case and batteries, charge controllers and solar panels will be sourced by the client for their location. This transfer of risk remains suitable.

# Unexpected Risk

While nothing as catastrophic as an unexpected flood occurred above our hardware, we did think about the physical safety of our boards. By each team member having custody of a petal radio board, this reduced the likelihood that all hardware could be damaged at once.

Our ECO’s have mostly altered specific wording of our initial requirements. This has been more of a homing in on, and clarification of our product as nothing fundamental has had to be altered in our project requirements to date.

The risk of the preproom’s unexpected PCB ordering schedule did not increase the ‘low’ impact of Risk Item #2 (Appendix) and our acceptance of risk was maintained. Our misunderstanding of the ordering schedule could have been avoided by speaking to the prep-room during our design phase. In the future we will double check avenues of ordering during the design phase, not after.

An unexpected element of scheduling was the under-estimation of coursework in our other courses this semester. While all assignments were tailored to assist with documenting and staying on track with our project, they required a substantial time commitment that was initially underestimated. Once we reviewed the syllabus of our courses, we were able to modify our GitHub scheduling to meet the demands of our course work outside of our project requirements.

# Reflection on Risk

Upon reflection, our assessment was quite accurate given the information we had at our disposal at the beginning of the project. We have learned that the most effective tool to combat risk and adapt to changing circumstance and scheduling were our weekly Monday and Friday team meetings. The Monday meetings outlined the tasks in review, adjusted their level of completeness, and assigned tasks for the upcoming week. On Friday’s we reflected on the week’s progress in much the same way, adjusted and assigned tasks as necessary and discussed any roadblocks or alterations in task due dates. All meeting minutes are stored on GitHub for ease of review. We feel these meetings kept us on track with scheduling and any tasks that may have required updated deadlines such as risk #2 & 5 (Appendix).

While the initial risk assessment is an important, we feel risk is an ever-shifting playing field as more information and more dependencies get checked off the list. This dynamic space requires frequent team meetings so everyone remains on the same page, as well as a mindset of adaptability and reflection to stay on track managing and identifying risk.

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| **No.** | **Description** | **Probability** | **Impact** | **Risk** | **Response** | **Outcome** |
| 1 | PCB will contain schematic/routing errors | MEDIUM | HIGH | MEDIUM-HIGH | **Avoid** - Proof-reading of board by all team members prior to ordering. Undergo design revisions advised by Capstone committee. | Minor time increase |
| 2 | Initial PCB design will take longer than scheduled due to unanticipated revisions | MEDIUM | LOW | LOW | **Accept** - accept that this portion of development may take longer than anticipated and adjust scheduling accordingly. | Minor time increase |
| 3 | PCB order will be lost by DHL shipping | LOW | LOW | LOW | **Accept** - as there will be a tracking number associated with our order, we will accept the risk of our shipment being lost as unlikely and in the event it is lost, the delay will not be long. | Minor time increase |
| 4 | The switching power supply will interfere with radio and data TX/Rx signals. | MEDIUM | HIGH | MEDIUM-HIGH | **Mitigate** - Create a custom shielding cap for the power supply. | Small budget and short time increase. |
| 5 | Development of prototype software will take longer than estimated. | HIGH | LOW | MEDIUM | **Avoid** -update milestones, scheduling and assignment of tasks regularly to adapt to changes in estimated development times. | Minor time increase associated with updates to the GitHub project management tool. |

# Appendix

Table 1. Original Risk Assessment submitted October 3, 2024.