

## **Glucose Alerting System**

Client: Olive Cernigila & Callie Berg

Advisor: Dr. John Puccinelli

Team:

Isabel Ploessl - Co-Team Leader

Claudia Beckwith - Co-Team Leader

Lauren Klein - BSAC

Ella Prose - BPAG

Audrey Zeller - BWIG

Kiera Klemm - Communicator

Date: 11/20/2025

## **Problem Statement:**

The overall goal of the Continuous Glucose Monitoring Bracelet is to make blood glucose status more clearly visible, understandable, and actionable for anyone supervising a young child with Type 1 Diabetes. Studies show that a diagnosis of diabetes can become just as stressful for parents to monitor and understand, as it is for the kids. This prototype should help relieve some of this stress by eliciting a visible and actionable signal to parents, which will convey whether treatment is needed or not.

**Brief Status Update:** Finalizing Box Design, Finishing Circuit and Code

## **Summary of Weekly Team Member Design Accomplishments:**

- Team:
  - 200's: Manufacturing Prototype
  - 300's: Circuit and Code Work

| Name             | Activity                                                                                                                                                                                                                    | Time (hr)                                     | Week Total (hr) |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|-----------------|
| Isabel Ploessl   | <ul style="list-style-type: none"> <li>- Formatted Progress Report</li> <li>- Advisor Meeting</li> <li>- Circuit Rework</li> <li>- Soldering Circuit</li> <li>- Soldering Research</li> <li>- Meeting with Dr. N</li> </ul> | ½ hr<br>½ hr<br>1 hr<br>4 hrs<br>1 hr<br>1 hr | 8 hrs           |
| Claudia Beckwith | <ul style="list-style-type: none"> <li>- Meeting with Dr. N</li> <li>- App building</li> <li>- Advisor meeting</li> </ul>                                                                                                   | 1 hr<br>3.5 hrs<br>0.5 hr                     | 5 hrs           |
| Lauren Klein     | <ul style="list-style-type: none"> <li>- Advisor &amp; Team Meeting</li> <li>- BSAC</li> <li>- Soldering Circuit</li> <li>- Meeting with Dr. N</li> <li>- Soldering &amp; Electrical Connections Research</li> </ul>        | 1 hr<br>1 hr<br>4 hrs<br>1 hr<br>1 hr         | 8 hrs           |
| Ella Prose       | <ul style="list-style-type: none"> <li>- Team meeting</li> <li>- Box and material testing</li> <li>- Ordered materials</li> <li>- Material research</li> </ul>                                                              | ½ hr<br>2 hrs<br>½ hr<br>1 hr                 | 4 hrs           |
| Audrey Zeller    | <ul style="list-style-type: none"> <li>- Team meeting</li> <li>- Box and material testing</li> <li>- Printed 2 versions of box and lid in different maters</li> </ul>                                                       | ½ hr<br>2 hr<br>2 hr                          | 4 ½ hrs         |
| Kiera Klemm      | -Team Meeting                                                                                                                                                                                                               | ½                                             | 3 ½ hr          |

|  |                           |     |  |
|--|---------------------------|-----|--|
|  | -Tested Box and Materials | 1hr |  |
|  | -Updated Box design       | 1hr |  |
|  | -Formatted Final Poster   | 1hr |  |

### **Weekly/Ongoing Difficulties:**

- **Coding the App**

### **Upcoming Team and Individual Goals:**

- Team:
  - Finalize Prototype
  - Poster Finalization
- Isabel Ploessl:
  - Finish Circuit Hardware
  - Begin Final Deliverables
  - Update Lab Archives
- Claudia Beckwith:
  - Finish app
  - BLE connection
- Lauren Klein:
  - BSAC
  - Finalize Circuit Components with Isabel
  - Start Testing Circuit
  - Clean up Soldering
- Ella Prose:
  - Work on poster
  - Work on final report
  - Finish testing
  - Order any last minute products
- Audrey Zeller:
  - Work on poster
  - Make any changes to box/reprint them
  - Update website
  - Work on testing

- Kiera Klemm:
  - Work on Poster
  - Finish Box prototype
  - Continue Testing

### Project Timeline :

| Project Goal              | Deadline | Team Assigned | Progress | Completed |
|---------------------------|----------|---------------|----------|-----------|
| Client Meeting            | 9/8      | ALL           | 100%     | Yes       |
| Weekly Progress Report    | 9/11     | ALL           | 100%     | Yes       |
| PDS                       | 9/18     | ALL           | 100%     | Yes       |
| Design Matrix             | 9/27     | ALL           | 100%     | Yes       |
| Preliminary Presentations | 10/3     | ALL           | 100%     | Yes       |
| Preliminary Deliverables  | 10/8     | ALL           | 100%     | Yes       |
| Show and Tell             | 10/31    | ALL           | 100%     | Yes       |
| Poster Presentations      | 12/5     | ALL           | 20%      | No        |
| Final Deliverables        | 12/10    | ALL           | 5%       | No        |

### Expenses :

| Item          | Description                       | Manufacturer | Part Number         | Date  | Qty | Cost Each | Total  | Link                                                                                                                                                                                                  |
|---------------|-----------------------------------|--------------|---------------------|-------|-----|-----------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PLA           | 30x30x15 mm box                   | DI Lab       | n/a                 | 10/22 | 6   | 0.25      | \$1.50 |                                                                                                                                                                                                       |
| Silicone Band | Silicone band for kids - 38/42 mm | DQ-Tech      | 113-7232568-5800209 | 10/13 | 2   | 4.95      | \$5    | <a href="https://www.amazon.com/PolviJoy-Silicone-Replacement-Compatible-Suitable/dp/B0B28PBHY9/ref=">https://www.amazon.com/PolviJoy-Silicone-Replacement-Compatible-Suitable/dp/B0B28PBHY9/ref=</a> |

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|  |  |  |  |  |  |  | <a href="#">sr_1_1?crd=3S57C0WFWLO22&amp;dib=eyJ2ljoiMSJ9.4NFYuRSDRXuxGhR9unpsJKbw81dxLArTu7HRm0RIbgeh60g1sTfaP2QyeSP8nJd-Dk7cljwr_7YsaEx3BhtaXVtBy_PbIPvnMkep42YbF-pnU98WUtrkwtckWK5Bo6yvTOogMrLKXiPtOYyjsjrBO_9p_W1Qo1428LagDmU87EGBeK89pxaHd9-6zwZmVenjEtacsVQd8og2xH1hQO1irk7YTDJ9IVuv7mrC-95Vz1fXOtGl-EV85G2jSim5v-hm2SELJ684ue3RyQE1er3edU9KSyjiyd8koFe6oaUE_dc.Lyhly4hgryeT7-zNXyld2mW-mgtaZCzflAC3CWoaAjCw&amp;dib_tag=se&amp;keywords=Polyjoy+Silicone+Replacement+Band,&amp;qid=1760401499&amp;sprefix</a> |
|--|--|--|--|--|--|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                                                  |                                                               |                             |            |              |          |                |                |                                                                                                                                               |
|------------------------------------------------------------------|---------------------------------------------------------------|-----------------------------|------------|--------------|----------|----------------|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                  |                                                               |                             |            |              |          |                |                | <a href="#">=polyjoy+silicone+replacement+watch+band,,aps,370&amp;sr=8-1&amp;th=1</a>                                                         |
| <b>Seeed Studio</b><br><b>XIAO nRF52840</b><br><b>(XIAO BLE)</b> | <b>Microcontroller used for led light control</b>             | <b>Seeed Studio</b>         | 4000434924 | <b>10/29</b> | <b>1</b> | <b>\$17.59</b> | <b>\$17.59</b> | <a href="https://www.seeedstudio.com/Seeed-XIAO-BLE-nRF52840-p-5201.html">https://www.seeedstudio.com/Seeed-XIAO-BLE-nRF52840-p-5201.html</a> |
| <b>LED Board</b>                                                 | <b>LED Opto/Lighting Evaluation Board</b>                     | <b>Soldered Electronics</b> | 333055     | <b>11/05</b> | <b>1</b> | 4.04           | 4.04           | <a href="#">333055 Soldered Electronics   Development Boards, Kits, Programmers   DigiKey</a>                                                 |
| <b>Resin</b>                                                     | <b>Lid for boxes</b>                                          | <b>DI Lab</b>               | n/a        | <b>10/29</b> | <b>3</b> | <b>\$2.34</b>  | <b>\$7.02</b>  | n/a                                                                                                                                           |
| <b>Battery</b>                                                   | 3.7 V Lithium Polymer Battery Rechargeable (Secondary) 500mAh | <b>Tiny Circuits</b>        | ASR00035   | <b>11/05</b> | <b>1</b> | <b>6.95</b>    | <b>6.95</b>    | <a href="#">ASR00035 TinyCircuits   Battery Products   DigiKey</a>                                                                            |
| <b>Seeed Studio</b>                                              | <b>Microcontroller used for led light control</b>             | <b>Amazon</b>               |            | <b>11/20</b> | <b>1</b> | <b>\$16.65</b> | <b>\$16.65</b> | <a href="https://www.amazon.com/dp/B09T9VVQG7?ref=cm_sw_r_cso_cp_apin_">https://www.amazon.com/dp/B09T9VVQG7?ref=cm_sw_r_cso_cp_apin_</a>     |

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| <b>XIAO</b><br><b>nRF528</b><br><b>40</b><br><b>(XIAO</b><br><b>BLE)</b> |                |  |  |  |  |  |  | <a href="#">dp_XN8TM7A</a><br><a href="#">VHPREK3AW9</a><br><a href="#">Z6D&amp;ref_cm</a><br><a href="#">sw_r_cso_cp_a</a><br><a href="#">pin_dp_XN8T</a><br><a href="#">M7AVHPREK3</a><br><a href="#">AW9Z6D&amp;soci</a><br><a href="#">al_share=cm_s</a><br><a href="#">w_r_cso_cp_ap</a><br><a href="#">in_dp_XN8TM</a><br><a href="#">7AVHPREK3A</a><br><a href="#">W9Z6D&amp;titleSo</a><br><a href="#">urce=true&amp;th=</a><br><a href="#">1</a> |
| <b>TOTAL:</b>                                                            | <b>\$66.19</b> |  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                           |