Using Pulse Oximetry To Detect Overdose

Joshua Muir
Jenny Li

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- Josh: Graduated this year at UNBC with a BSc. in computer science.
- Jenny: UNBC graduate with a BSc. in computer science with previous IT work experience.
- We were approached by Ron Craigmyle and Sandy Brunton for this project and have been working with them and Bridges Supportive Housing to come up with a plan.

- Help prevent overdose from occurring within private residences at Bridges Supportive Housing using wearable technology.
- Provide an inexpensive, easy to use, and modular solution which the residents will want to use.
- Create a system that will preserve the privacy of residents when they're not in danger, while alerting Bridges staff of a possible overdose.

- During an opioid overdose, the part of the brain which regulates breathing is affected.
- This results in the user not having enough oxygen, and without oxygen for long enough the user can die.
- A pulse oximeter is a device which provides real-time blood oxygen monitoring.
- Blood oxygen level decreases when someone is overdosing, and can indicate early signs of a drug overdose.

- Use an existing Bluetooth pulse oximeter wearable device.
- Wrist or finger oximeter options.
- The oximeter will communicate via Bluetooth with a microcomputer located in the room.
- The data colected by the micro computer will be sent to a computer at the front desk via the Internet.
- If the wearable device detects dangerous levels of blood oxygen in the wearer, the front desk staff will be alerted and given time to intervene if needed.

We will approach this project in phases, with the first phase consisting of creating a prototype of one wearable device, connected to one microcomputer and related software.
Once the prototype is complete and successfully tested, then we will look at expanding the system to cover the whole housing unit.

The deliverables for the prototyping phase is as follows:

- Single unit prototype of overdose detection system.
    - One wearable pulse oximeter.
    - One programmed microcomputer which will connect to the oximeter.
    - Program code to connect all devices.

Budget And Timeframe

The budget and timeframe for the prototyping phase is as follows:

- $25,000 Budget.
  - ▶ $24,000 labor (two developers employed full-time)
  - ▶ $1,000 required technology, software licensing etc.
- 3 month estimated timeframe.

Thank you for your time.