



SnoozeBud Monitoring Device

PROBLEM STATEMENT

- Infants are at risk of Sudden Infant Death Syndrome (SIDS) while asleep and unsupervised. A device that could protect their unsupervised baby would be very beneficial
- Snoozebud is designed to eliminate the dangers and psychological stress related to SIDS

BACKGROUND

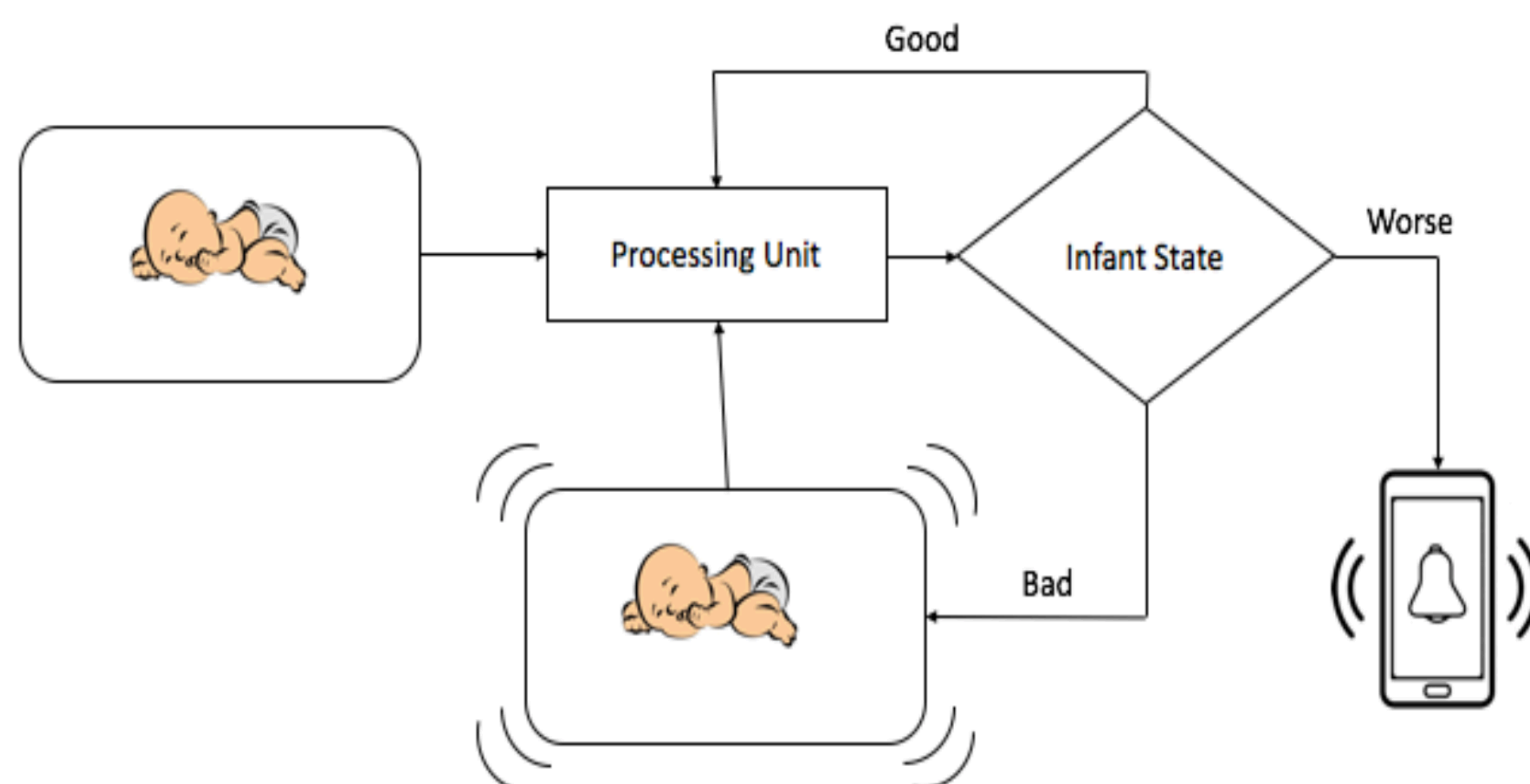
- 1 in 2000 infants die of SIDS in Canada every year
- Occurs in infants < 1 year old
- Cause of SIDS not yet identified
- Existing solutions include wearable devices that use pulse oximetry and Angelcare products

OUR PRODUCT

- Monitors breathing
- Vibrates to try and wake up baby
- App alerts parents of emergencies
- Arduino used to control the circuit

Innovations:

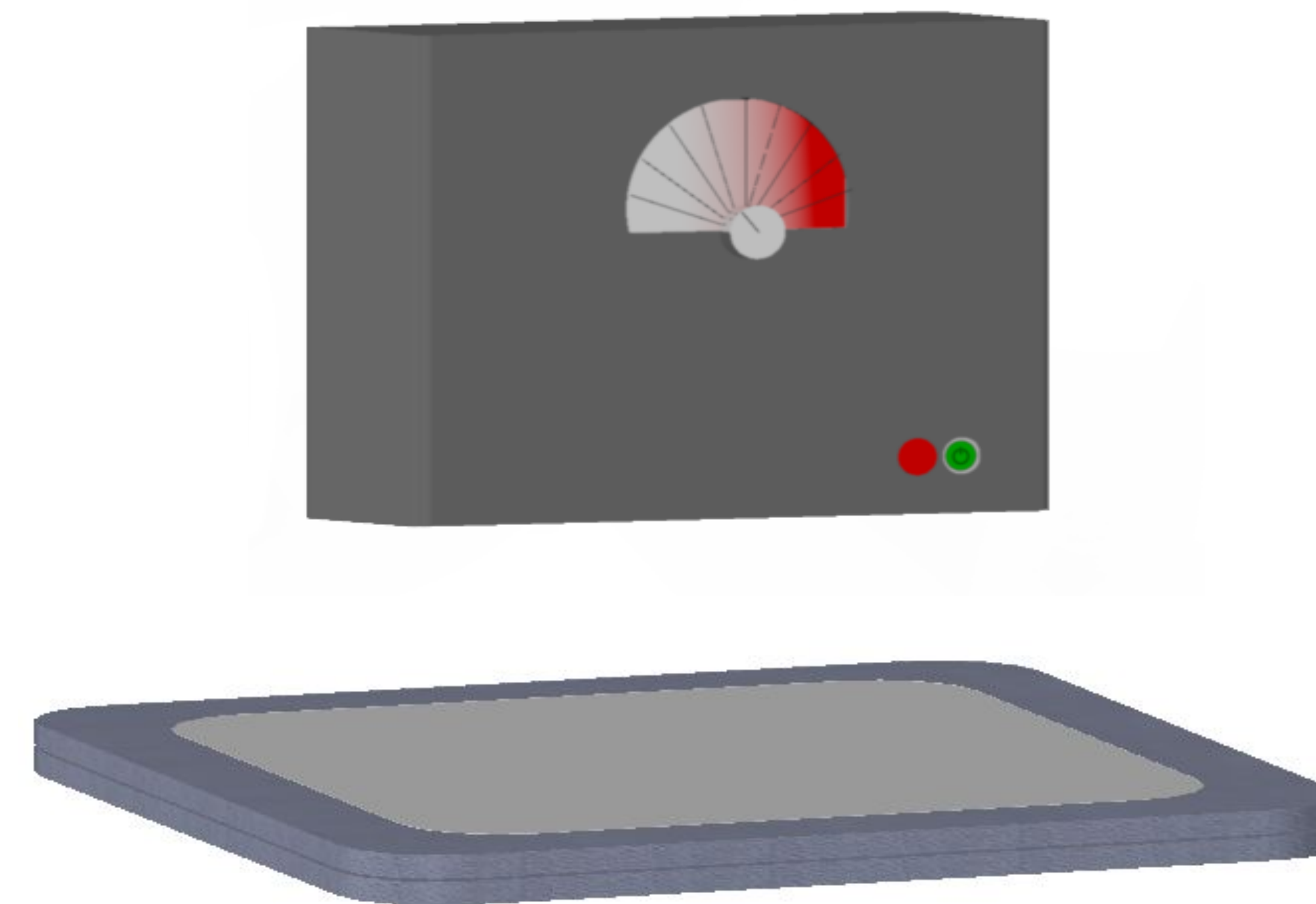
- Non-invasive
- Attempts to wake up the baby or restart the baby's breathing cycle before parents arrive



Contributors : Bahar Baghazadeh , Blaise Crisologo, Shayne Kelly, Alastair Scott
Simon Fraser University, Engineering Capstone Project
August 1 2017

MONITOR PAD

- Piezoelectric sensors monitor movement
- After 7 seconds without movement, signal is sent to vibration motor
- 5 more seconds without movement after first vibration, a signal alarm rings and second vibration occurs



VIBRATION BOX

- Box contains all electronics, Arduino and 12V motor
- 9V battery source
- Vibrates for 3 seconds when movement is not detected
- Will have adhesive material on side to attach to crib

MOBILE APPLICATION

- Bluetooth module connected to Arduino
- Must be paired with our device
- Alarm goes off in case of emergency

FUTURE WORK

- Two way to optimize vibration procedure:
 - More power and bigger motor to make vibration stronger
 - Smaller vibration devices that could fit right under baby
- Replace Bluetooth connection with Wifi for alarm app
- Talk to pediatrician about ways to optimize our design
- Redesign pad to be thin monitoring strip underneath baby

CONCLUSIONS

- SnoozeBud is an effective, non-invasive method to prevent SIDS and help the whole family get good night's sleep
- Using vibration feature, our device will try to wake up infants before the parents arrive which no other devices can do
- The app is easy to set up and use, and will allow parents to be notified of potential emergencies from anywhere

REFERENCES

- BabyCenter Canada Medical Advisory Board . (2017, May 28). *Sudden infant death syndrome (SIDS)* [Online]. Available: <https://www.babycenter.ca/a419/sudden-infant-death-syndrome-sids>
- Nemours. (2017, May 28). *Sudden infant death syndrome (SIDS)* [Online]. Available: <http://kidshealth.org/en/parents/sids.html>



For additional information please contact:

Bahar Baghazadeh
Faculty of Applied science
Simon Fraser University
bbaghaza@sfu.ca