Design Criteria

Hope Band
Hope Band Article

Autonomous Device for Reversing Opioid Overdoses
Above device article

Wearable Overdose Detector

Pulse Oximeter

We have created this document to outline the criteria for this project. The document will discuss each need and then turn it into a direct criterion. Next we ranked the specifications of the project on a functional, non-functional and constraint basis. Finally, we compared our design to other products on the market.

Number (not rank)	Need	Design Criteria
1	The monitor needs to be non-invasive (aesthetics)	discrete
2	Cost efficient	Below $100
3	Measure blood oxygen level	Detect if blood oxygen level is less than 90%
4	Measure the respiratory rate	Detect if person is taking less than 10 breaths per minute
5	Responds when people are overdosing	The device is accurate
6	Should not affect their day to day life	Work hands-free

Activity 4 – Benchmarking

	Design Specifications
	Functional Requirements
1	Measures blood oxygen level
2	Measures breaths per minute
3	Sends an alert
4	Hands free
5	
6	
	Constraints
7	Size
8	Cost
9	
10	
11	
12	
	Non-Functional Requirements
13	Aesthetics
14	Comfort
15	
16	
17	
18	

Benchmarking

Monitoring Device/Specifications	Hope Band	Pulse Oximeter	Shoulder Detector	Glucometer
Company	N/A	ToronTek	N/A	DexCom
Cost	N/A	$80-90	N/A	$100
Material	Rubber	Plastic	plastic	Plastic
Shape/concept	wristband	Fingertip device	Shoulder clamp	Oval
Size	small	small	small	1 inch
Method of detection	Blood oxygen and breaths (wrist mounted pulse oximeter)	Blood oxygen level and breaths per minute	Respiration rate (breaths per minute)	Sensor
Method of alerting someone	Connected to app	None	None	N/A
Non-invasive	Yes	Yes	No	Yes

In conclusion, these are the key aspects for the design of this product and the information provided in this document has given us a deeper understanding of the design requirements for this project.