Mobile Patient Monitoring System
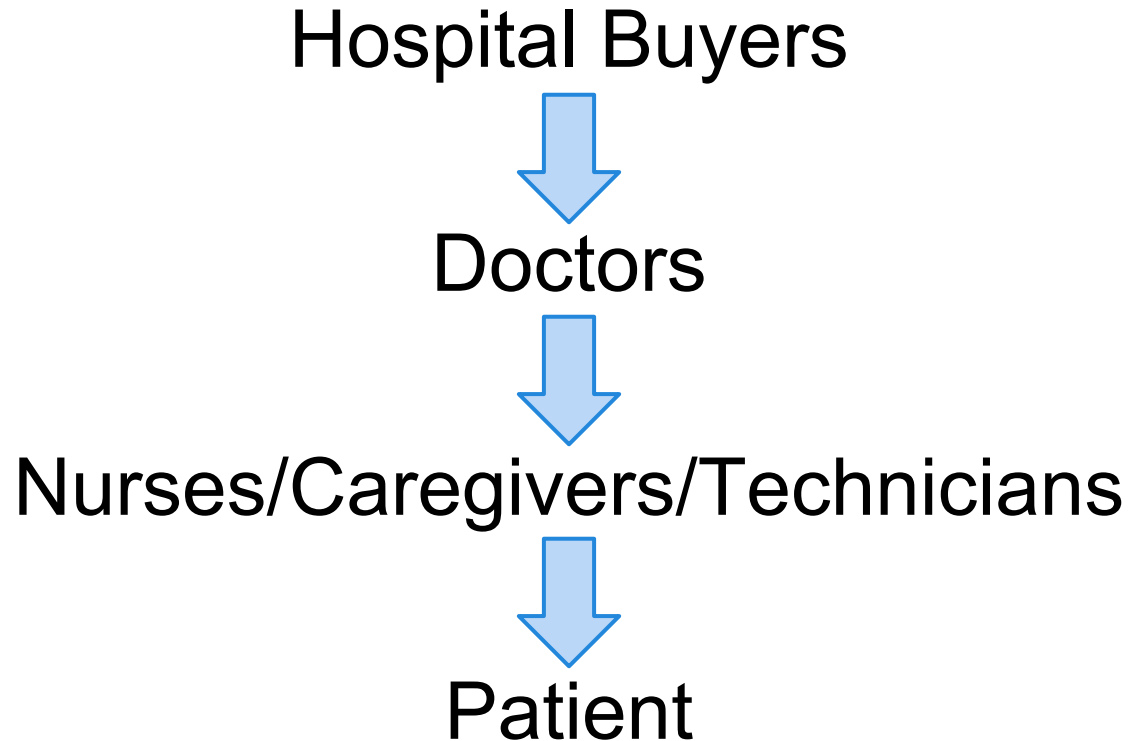
Andrew Carp, Cody Chen, Inbar Fried, Michael Nuzzolo, and Emily Quigley

Mobile Medical Devices - Team 4 - Final Project - December 4th, 2014
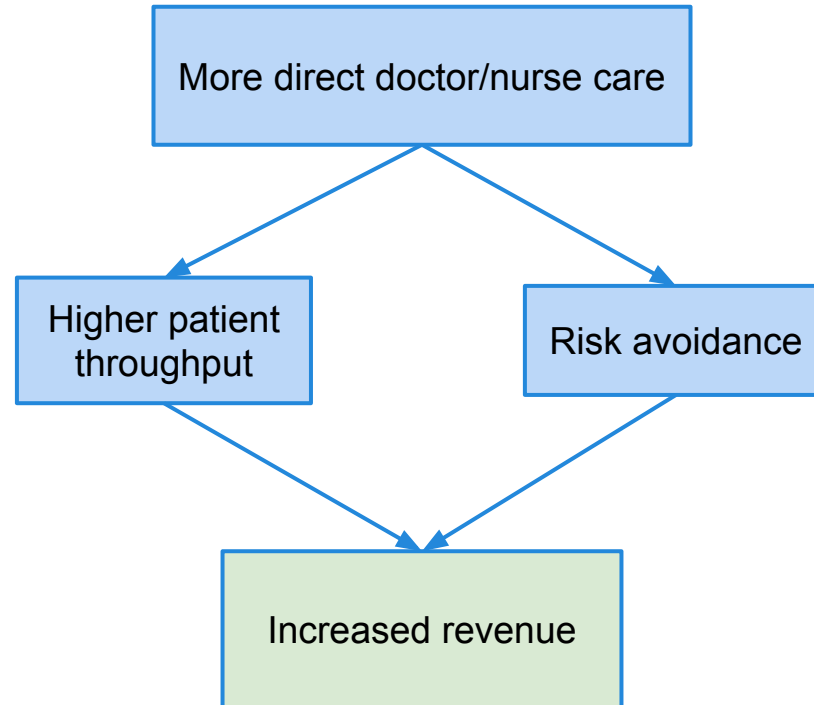
Product Overview

We have created a supplementary patient monitoring system that allows remote access to patients' most vital data and direct communication with patients' caregivers. This fosters increased efficiency and therefore betters patient care overall. Furthermore, our product is mobile, allowing patients to comfortably continue to be monitored while out of their rooms.

This product will be available for in-hospital use by doctors and nurses by July, 2015.
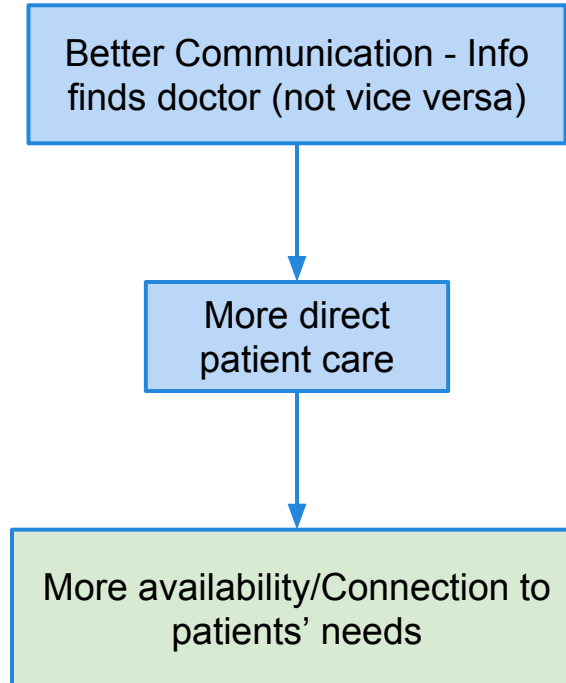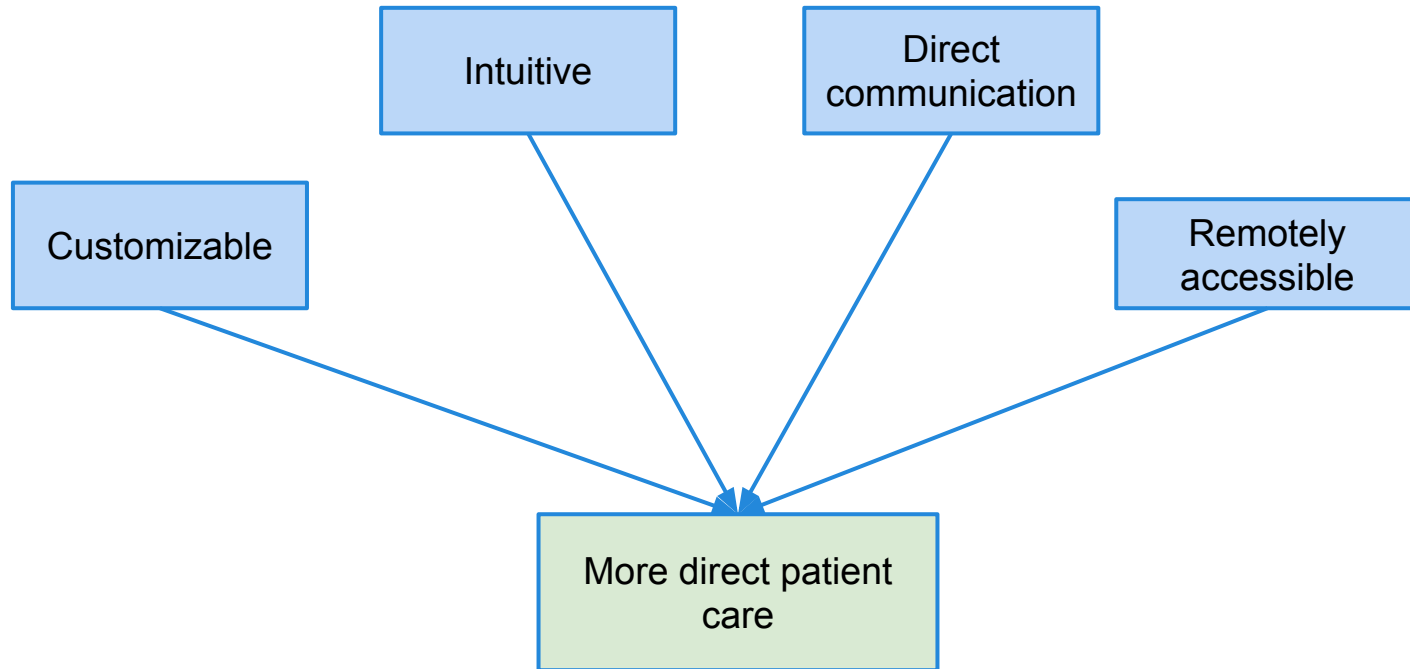
Customer Sequence

Hospital Buyers

⬇

Doctors

⬇

Nurses/Caregivers/Technicians

⬇

Patient

Hospital Buyer/Administrator

Doctor

Better Communication - Info finds doctor (not vice versa)

More direct patient care

More availability/Connection to patients' needs

Patient

Increased mobility → Minimized stress levels

Awareness of constant care → Minimized stress levels

Visually pleasing display/familiar technology → Minimized stress levels

Minimized stress levels → Better patient perception of care
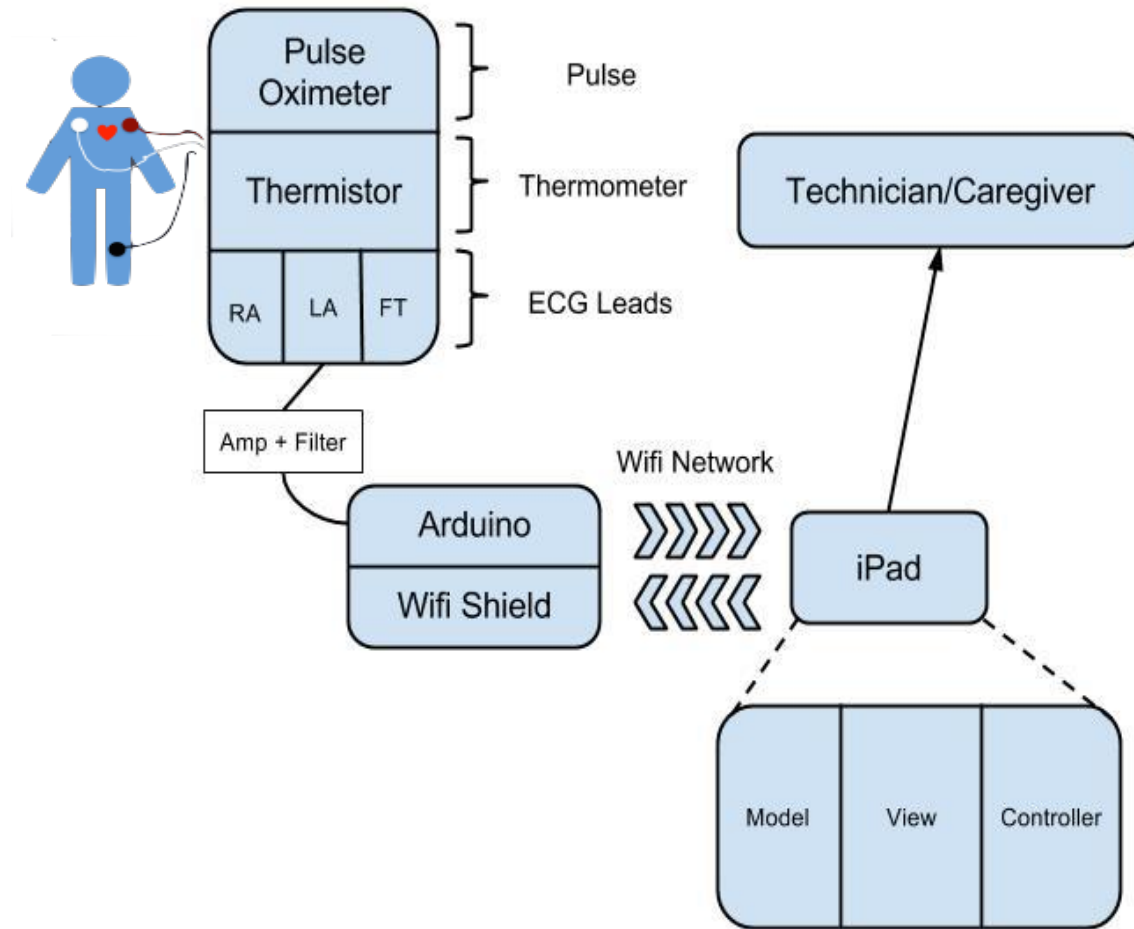
Purpose of Design: Hardware

- Patient mobility and comfort
- Awareness of continuous monitoring
- Compatible with other devices

Icon	Description
	change amplitude (size) of ECG wave
	- start/stop manual NBP measurement - start auto series - stop current automatic measurement within series
	start NBP measurement and measurement series
	start veni puncture (inflate cuff to subdiastolic pressure)
	access patient reports
	start a delayed recording
	access **Vital Signs** recording function
	set wide automatic alarm limits
	access wedge procedure window
	review vital signs trend
	access event surveillance
	access the calculator
	gas analyzer - exit standby mode
	enter profile menu, or revert to default profile
	show BIS Sensor
	freeze waves
	set alarm limits
	change alarm volume
	change QRS volume
	enter standby mode - suspends patient monitoring. All waves and numerics disappear from the display. All settings and patient data information are retained.
	review beat labels (annotate arrhythmia wave)
	access the Loop
	review graph tre
	access calculatio
	access the Drug
	suppress zero for all gas measurements
	change Screen, or revert to default screen
	previous Screen
	quick admit a patient
	enter patient identification menu to admit/discharge/transfer
	end case to discharge a patient
	view information for patients in other beds
	change screen brightness (not for independent displays)
	re-learn arrhythmia
	display external device information
	access ProtocolWatch
	switch CO_2 pump off
	enter data manually
	open the histogram window
	access remote applications (if Application Server is connected)
	access the EEG montage
	access timers
	set standard or EASI lead placement
	new lead setup
	start/stop car seat assessment record
	open unit conversion window

3	Main Screen - close all o
4	Back - go back one step t
5	SpeedPoint knob - rotate
6	Function keys on remote
7	On/standby key
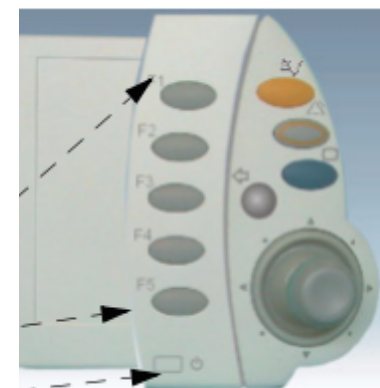
ECG
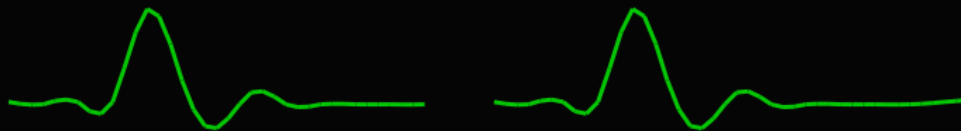
BP   **120** mmHg
78

SPO2   **93**%

PULSE   **21** bpm

TEMP   **112.0°** ℃ | °F

ALARM: TEMP

A. Rennel Room #133A

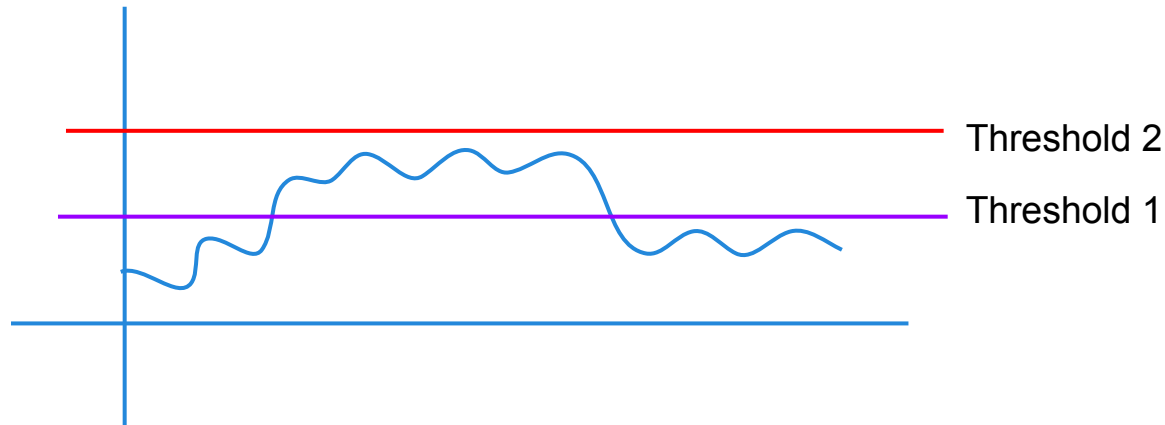| SETTINGS | ACCOUNTS | PATIENTS | MESSAGES | RECORDS |

Purpose of Design: UI

- Clean, simple, and familiar
- Emphasizes significant information
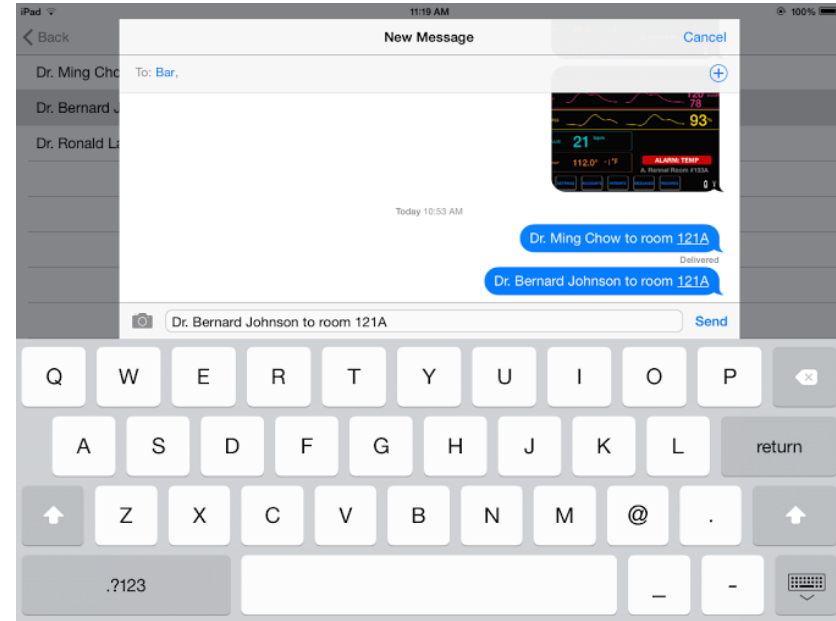- Customizable
- Secure

Purpose of Design: Alarms

- Audible and visual
- Alarm data archived for doctor needs
- Lessen alarm fatigue

Purpose of Design: Messaging

- Alert doctor when necessary
- Information finds the doctor

Ideal/Future Product

- Compact hardware
- Increase measurement accuracy
- Screen share
- Video calls
- Security
- Market testing

Lessons Learned

Develop a product guided by existing customer problems and direct solutions to them, rather than building features and technology and trying to fit it to a problem afterwards

Q&A