

NICView: An Interactive Neonatal Case Simulator

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Problem Statement

- Because of new work hour limit restrictions on residents in the Neonatal Intensive Care Unit (NICU), they lack the case experience gained with interactive patient care, and there is a consequent reduction in patient safety and quality of treatment.

Constraints, Limitations, and Exclusions

- Protecting patient privacy and safety
- Scheduling/time
- Accessibility

Primary Objective

- To create a product that solves the problem of NICU resident inexperience in a convenient and effective manner.

Needs Assessment

- A safe and convenient method for residents in the NICU to practice procedures.
- A way for instructors to monitor resident performance.
- A practice tool that will expose residents to a large variety of cases.

Goals

- User-Software Interaction
 - Interactive
 - User-friendly
- User-Administrator
 - Feedback system
 - Consequence/Reward
- User-User Interaction
 - Forum
 - Recordable data

Factors

- Number and type of scenarios
- Programming Software
- Online interactive forum



Background

- Current standard
 - Simulation Doll
- Pros
 - Volume
 - Variety
- Cons
 - Convenience to residents



<http://www.kyforward.com/our-health/files/2013/07/doll.jpg>

Design Approach

- System and Environment
 - Will be played at home
 - Will be in 2D
- Performance Metrics
 - Point system
 - Timer
 - Quiz questions

Desired Outcomes

- Residents and medical school students should be able to use our program at home
- The NICU should see increased problem-solving competency and confidence in their residents
- Our program should be modifiable to add more scenarios as desired

Methods

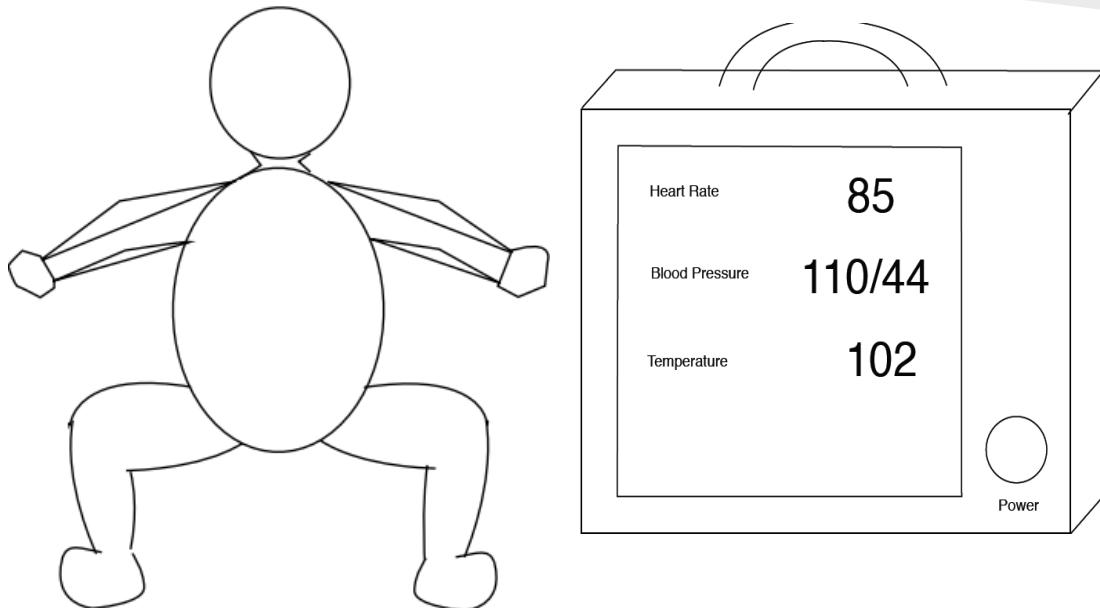
- Main aspects of the game
 - Initial Information/Set-up
 - Decision Points
 - Quiz questions
 - Online forum

Last Semester

- Decided on a game engine
- Initial scenario
- Visited a simulation session
 - How do residents think through scenarios
 - Flowchart model

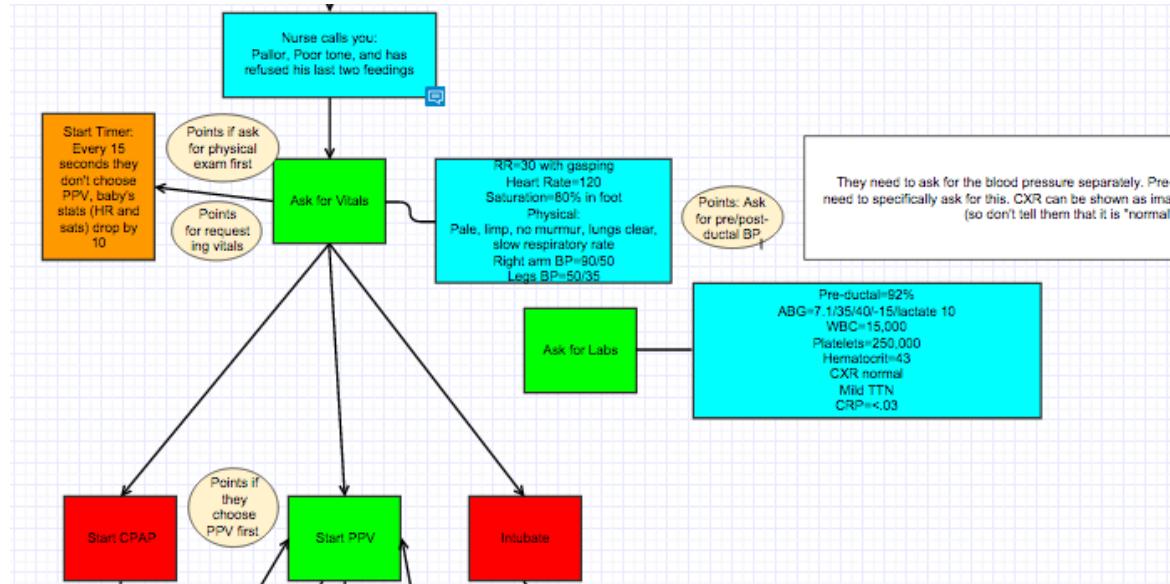
Current Progress - Graphics

- **Graphics**
 - Software
 - Baby
 - Vitals monitor



Current Progress - Flowchart

- Finished with two scenarios



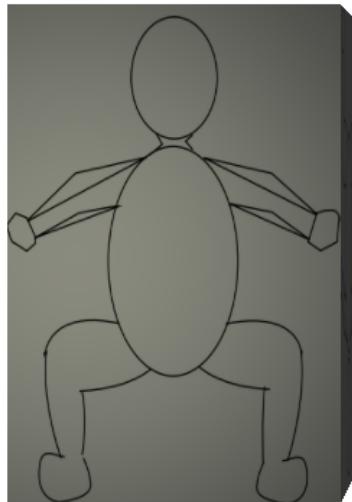
Current Progress - Unity

- Graphics set to scale with screen resolution
- Level select buttons and scenes made
- Button disappears when clicked for first scenario

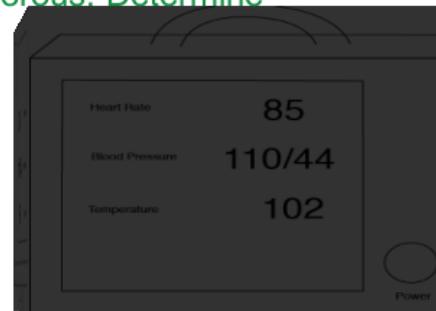
Current Progress

Scenario Description:

You have been called in to treat a newborn pre-term baby who isn't breathing and isn't vigorous. Determine the best course of action.



Proceed



Work Plan

- This month:
 - All scenarios will be flowcharted
 - Medical equipment needed in the scenarios will be drawn and colored for input in game
 - First scenario programmed into unity and ready to play
 - CELA meeting this Friday 1/23/15

Evaluation

- Self evaluation based on three categories:
 - Objectives established at every team meeting
 - Lindsey will make a weekly team agenda that is sent out every Sunday
 - Prototype functionality
 - Is the game working the way we want it to work?
 - Accurate and effective method for medical residents to learn and practice medicine in the NICU