

Physical 3D model of the larynx with moving parts

Client: Sherri K. Zelazny

Team Members: Kevin Hanson (BSAC)
Nick Ladwig (Communicator)
Jonathan Meyer (Leader)
Ken Roggow (BWIG)

March 27 to March 2, 2008

Problem Statement

The goal of this project is to develop a physical 3D laryngeal model, with moving laryngeal cartilage, bones, membranes and muscle, to demonstrate nerve/muscle action and interaction in the larynx for voice, airway and swallowing. The model is to be used as a clinical tool for patient education for improved understanding of the laryngeal mechanism; and to plan treatment based on diagnosis of voice, airway and/or swallowing disorder.

Last Week's Goals

- Research methods of cartilage structure production
- Research production of sacrificial mold
- Develop design for muscle attachment to cartilage structure

Summary of Accomplishments

- Determined and ordered cartilage materials (mold and casting)
- Met with Greg Gion regarding muscle material & aesthetics
- Ordered materials for muscles
- Met with Adam K.
- Researched motors
- Enhanced details of muscle dynamics

This Week's Goals

- Create cartilage structure
- Select and order motors
- Continue to enhance design details

- Begin creating muscles?

Project Difficulties

- Kevin was sick with mono this week

Activities

Kevin Hanson

3/27/08	Team Meeting	1.75 hr
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Nick Ladwig

3/27/08	Team Meeting	1.75 hr
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3/28/08	Ordered Materials	0.50 hr
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4/01/08	Established expense estimates	0.25 hr
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-----	Researched motors & molding techniques	1.75 hr
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Jonathan Meyer

3/27/08	Team Meeting	1.75 hr
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-----	Meeting with Adam K.	0.50 hr
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3/31/08	Meeting with Greg	1.50 hr
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-----	Research PMMA	1.40 hr
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Ken Roggow

-----	Researching/Ordering materials	0.50 hr
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3/27/08	Team Meeting	1.75 hr
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-----	Meeting with Adam K.	0.50 hr
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3/31/08	Meeting with Greg	1.50 hr
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Project Schedule

Tasks	Jan.	February					March				April					May		
	25	1	8	15	22	29	7	14	21	28	4	11	18	25	30	2	7	
Research and Development																		
Research	Blue	Blue					Red											
Brainstorm		Grey	Grey				Red											
Develop Prelim. Design			Pink	Pink	Pink	Pink	Red											
Detail/evaluate design							Red	Pink	Pink									
Build Prototype							Red			Pink	Pink	Pink	Pink					
Test Prototype							Red							Brown	Brown			
Website		Ken																
Deliverables							Red											
Mid Semester Presentation							Red	Red										
Mid Semester Report							Brown	Brown										
Final Presentation							Red									Red	Red	
Final Report							Red									Brown	Brown	Brown
Progress Reports	Jon	Nick																

Expenses

\$55.03 – Cast Rite Cast Rite & FXRite 12 Pint Kit

\$ 48.67 – Silicon for muscles