2.5% scans fail due to claustrophobia

Success rate varies on technician skill

MRI is daunting and loud

Over 50% of 3-7 year olds are sedated for MRI scans

Background

20-40% of children experience side effects from sedation

Fear Mitigation Device for Pediatric MRI

Decrease sedation rate of pediatric patients

Immersive and distracting

Hallway-to-Hallway experience

Objective

Augment MRI technician

Child

friendly

Constraints

MRI-safe material

Head coil size limitation

Low technician dependence

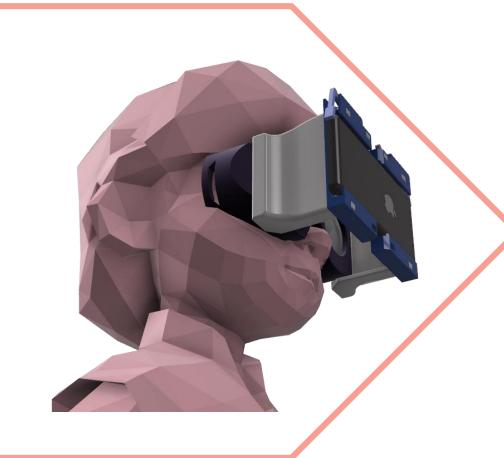
Fluid experience

Kid-Friendly

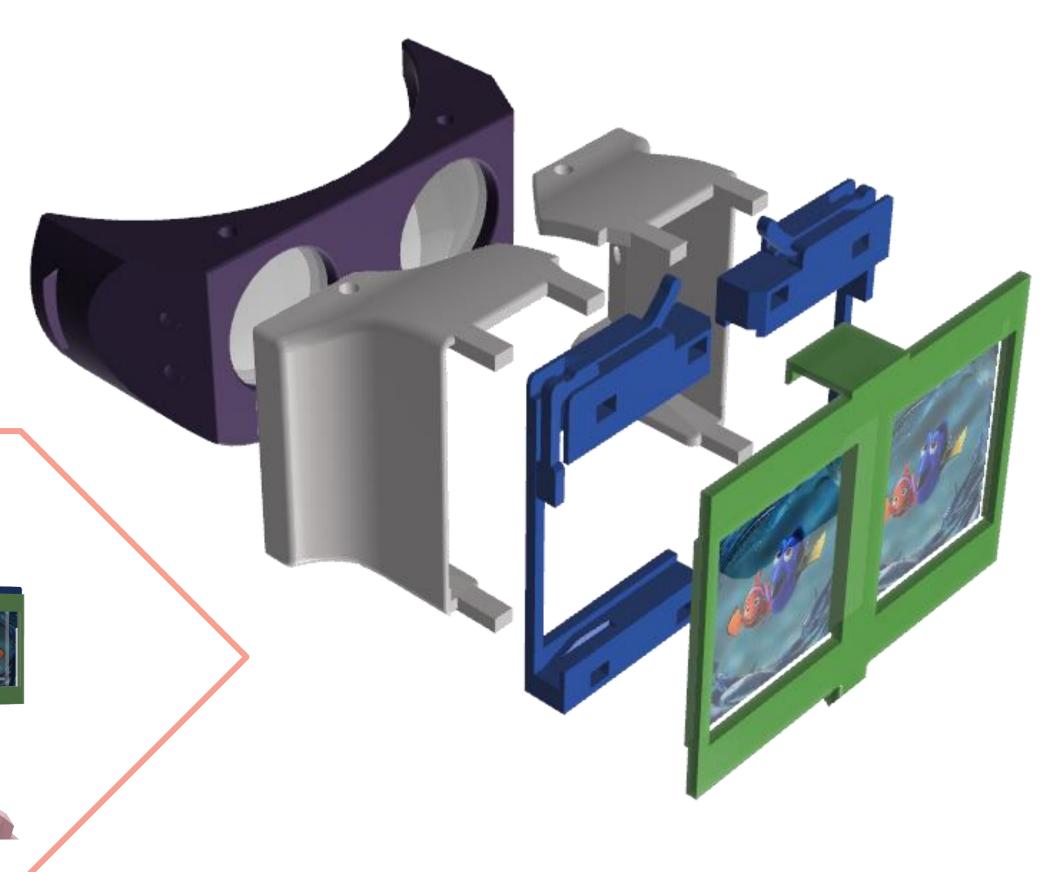


Hallway

- iPod touch
- Google Cardboard app
- Immersive VR experience



Tri-modal Design



Feedback

"Every hospital would buy and use these." Dr. Jules Katz, Radiologist

"Parents feel helpless when their children are afraid of the MRI." Mona Guha, CYC

> I like having control over what I watch—like fish!" KidsTeam



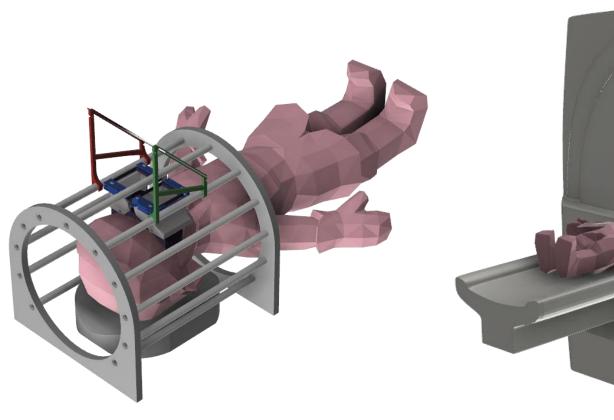
Transition

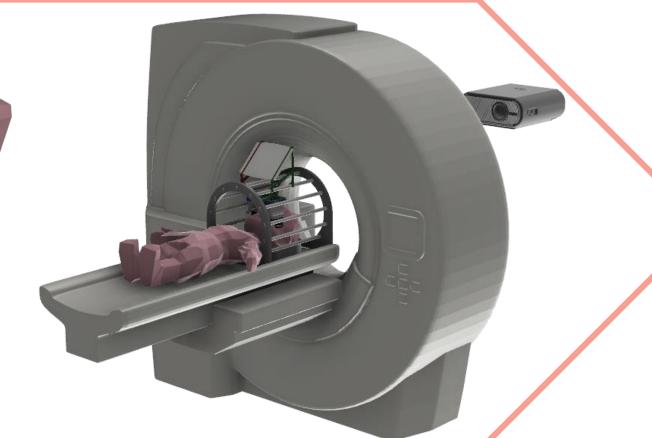
- Quick removal of non-MRI safe iPod Touch
- Use of transparent stereoscopic image to continue experience
- Allows for seamless transition between hallway and MRI environment



Inside the MRI

- Mirror Projector System
 - Uses standard MRI projector and surface mirror
 - Easily controlled by technician
- Head coil compatible
- Limits head movement of patient
- Stereoscopic video experience





Business Model

HIGH Our Concept Sedation Rate VisuaStim Painted MRI LOW Safety Technician Economical **Immersive** Independent Experience

Channels Catalogs Sales Representatives **Clinical Journals** Medical Magazines

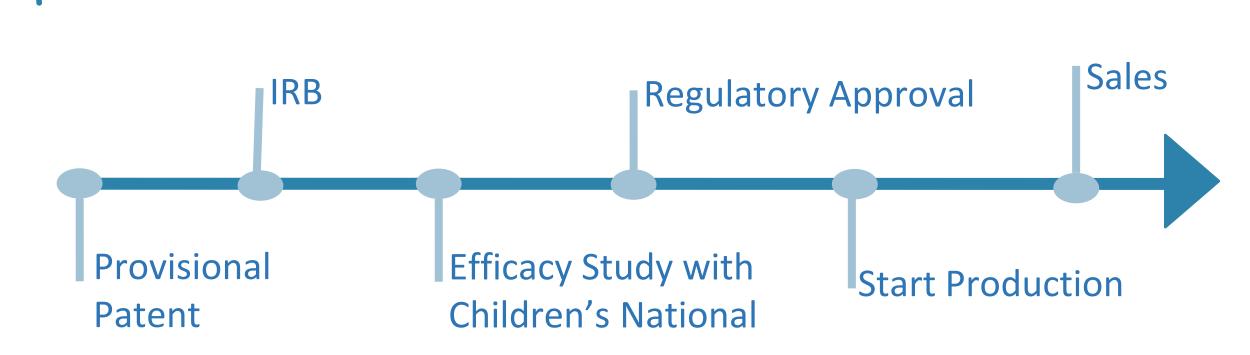
Customer Segments Hospital Administration Pediatric Innovation Units MRI Technicians Clinicians **Primary Users:**

Pediatric Patients



Revenue Streams Kids customize and keep their device Sold to hospitals and reimbursed through insurance

Implementation



Group 15 Patricia Barton, Dr. Andrew Matisoff Divya Jain, Dakota Dr. Ian White Katz, Kenneth Ke,

Kyle King

Acknowledgements

Dr. Monifa Vaughn-Cooke

Dr. Giuliano Scarcelli UMD Neuroimaging Center

HCIL KidsTeam

THE FISCHELL DEPARTMENT of BIOENGINEERING



