



Innovating For Resource-Poor Regions

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The Global Perspective

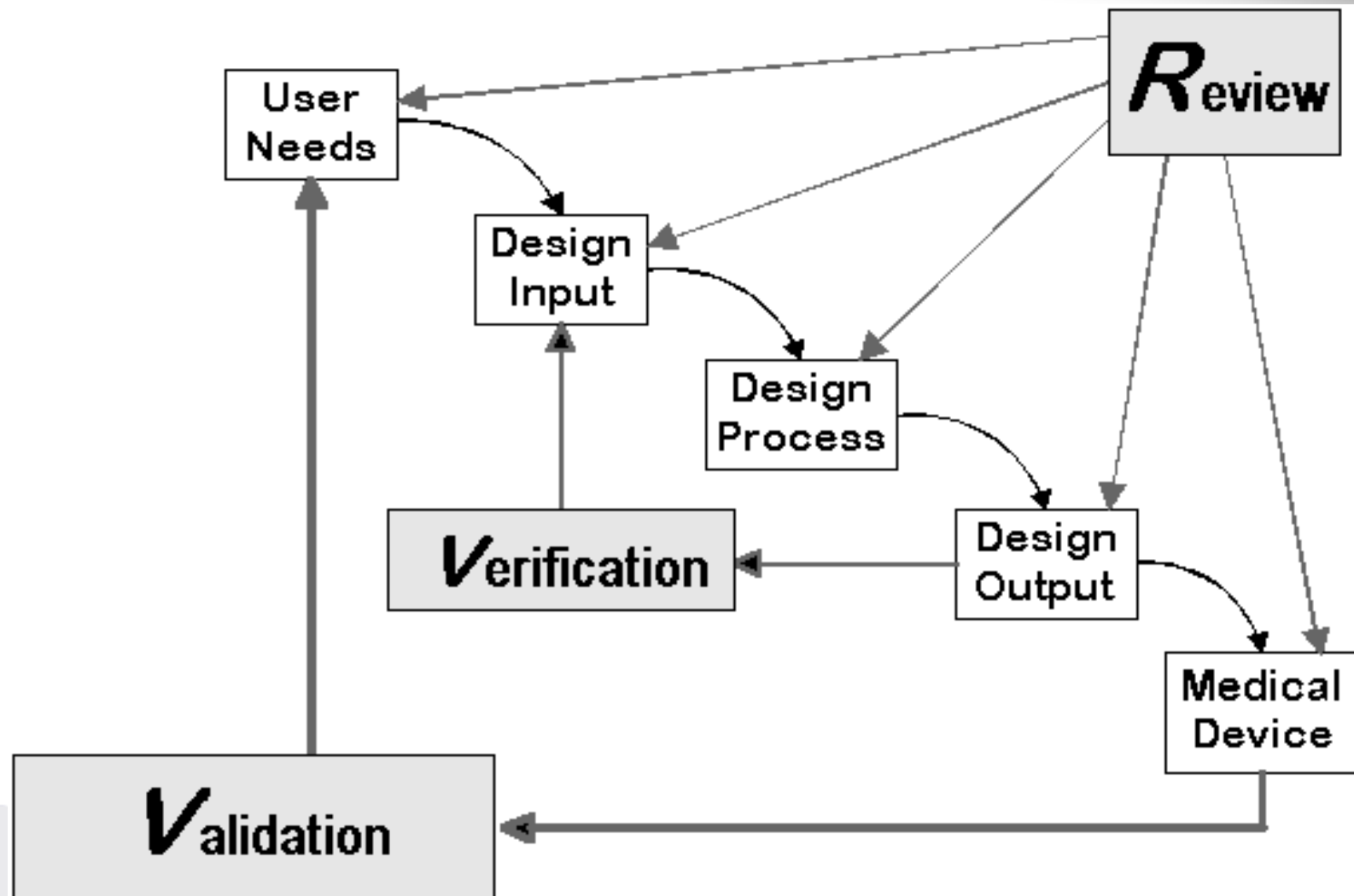


How is innovating for a resource poor environment different?

The Global Perspective



Its not! You just need to understand user needs





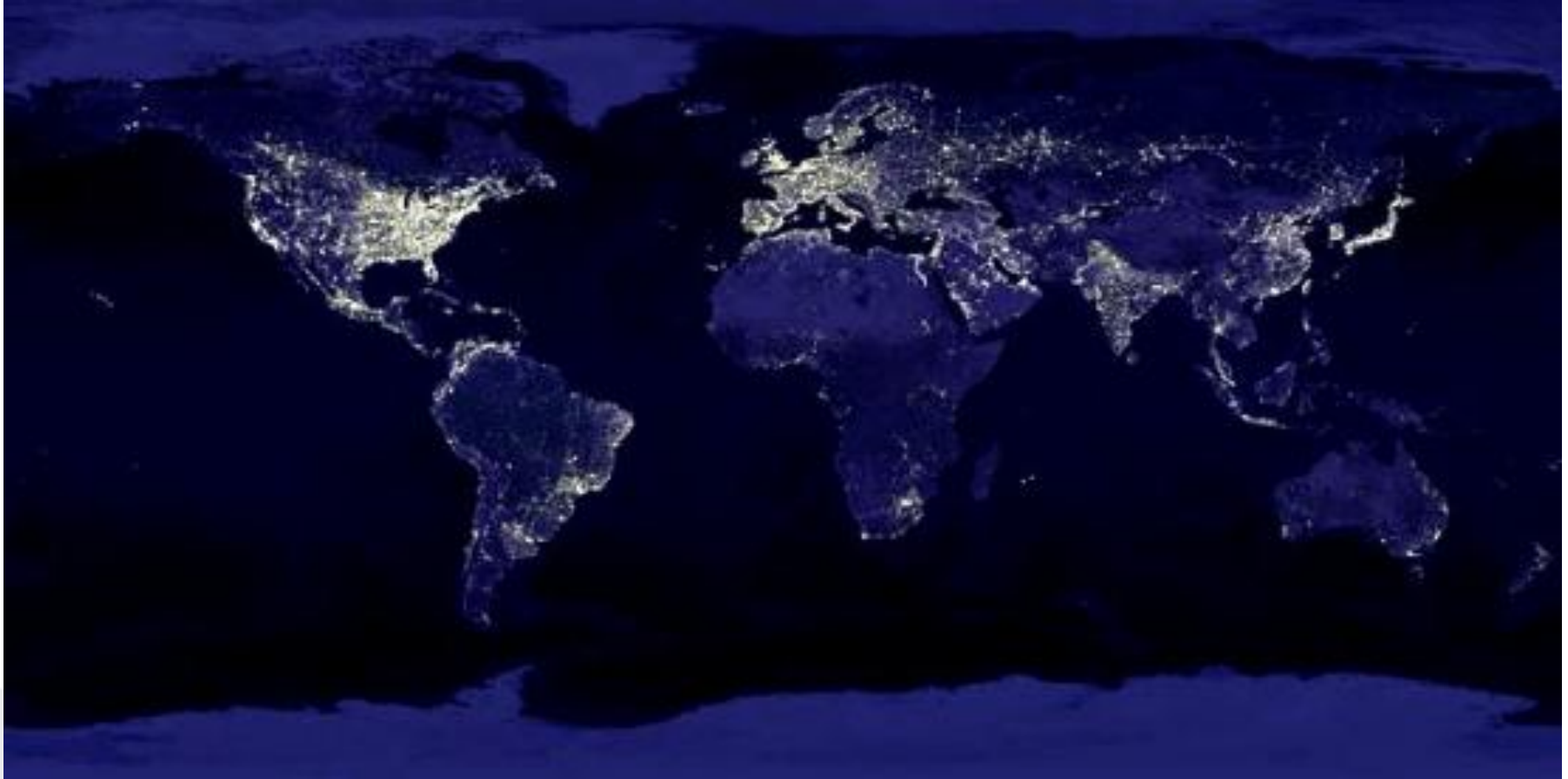
The Global Perspective

- Infrastructure
- Government
- Culture





The Global Perspective



The Global Perspective



The Global Perspective



The Global Perspective

- Local Government
 - Stability
 - Healthcare laws



It is illegal to import medical devices without FDB Approval

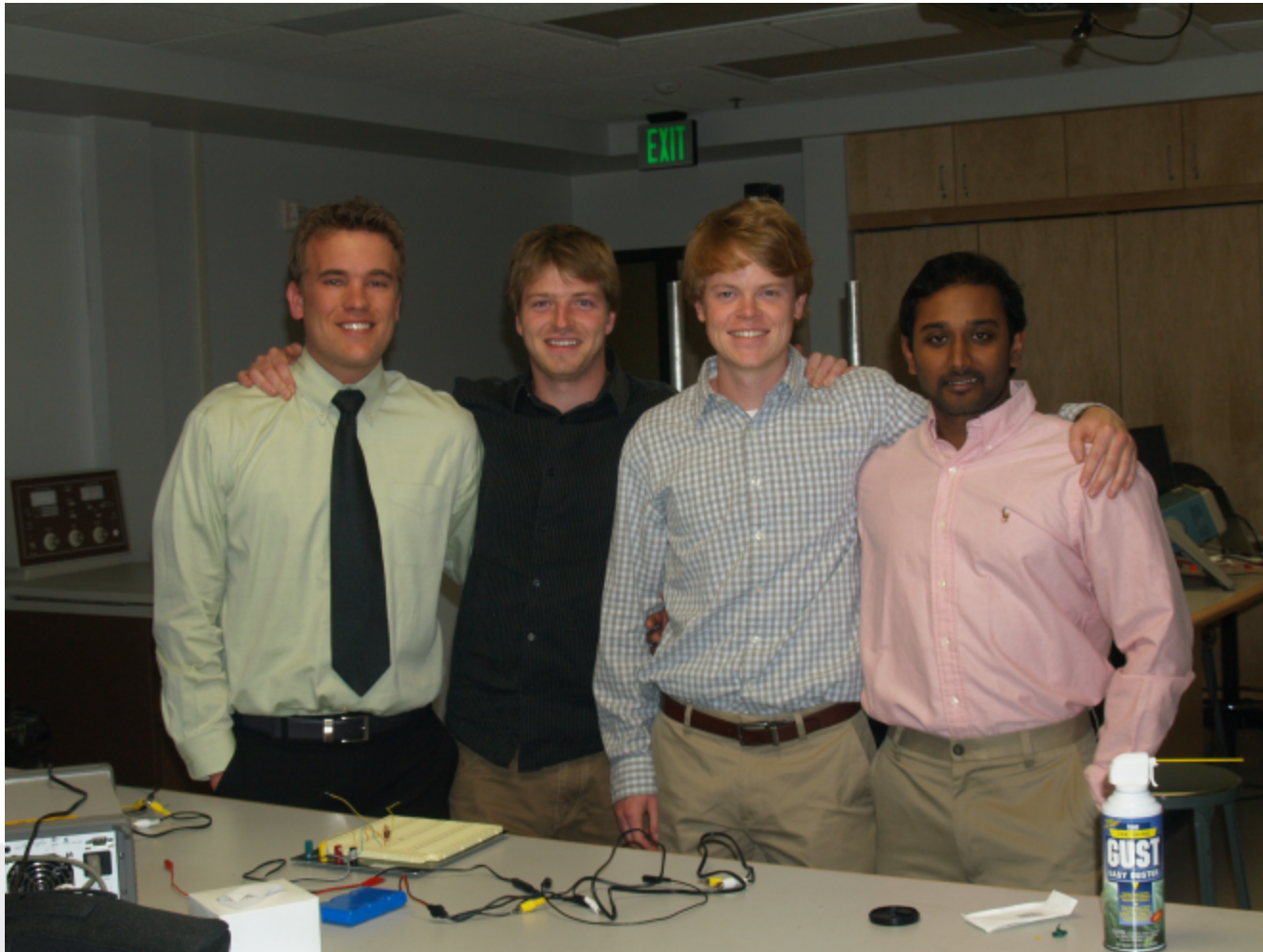
- Accra, Aug. 25, GNA - The Food and Drugs Board (FDB), on Wednesday said that some companies and individuals were importing and distributing medical devices.....These were contained in a statement issued in Accra and signed by Dr Stephen K. Opuni, Chief Executive Officer of FDB.....
- .sale and supply of medical devices without registering them with the FDB flouted the sections of the Food and Drugs Law.
- **'No person shall manufacture, prepare, sell, supply, export or import into Ghana any drug, cosmetic, medical device or household chemical unless the article has been registered with the Food and Drugs Board.'**

The Global Perspective

- Culture



Case Study



The Innovation Process

- Discovery of unmet needs



The Innovation Process

- Discovery of unmet needs



The Innovation Process

- Discovery of unmet needs



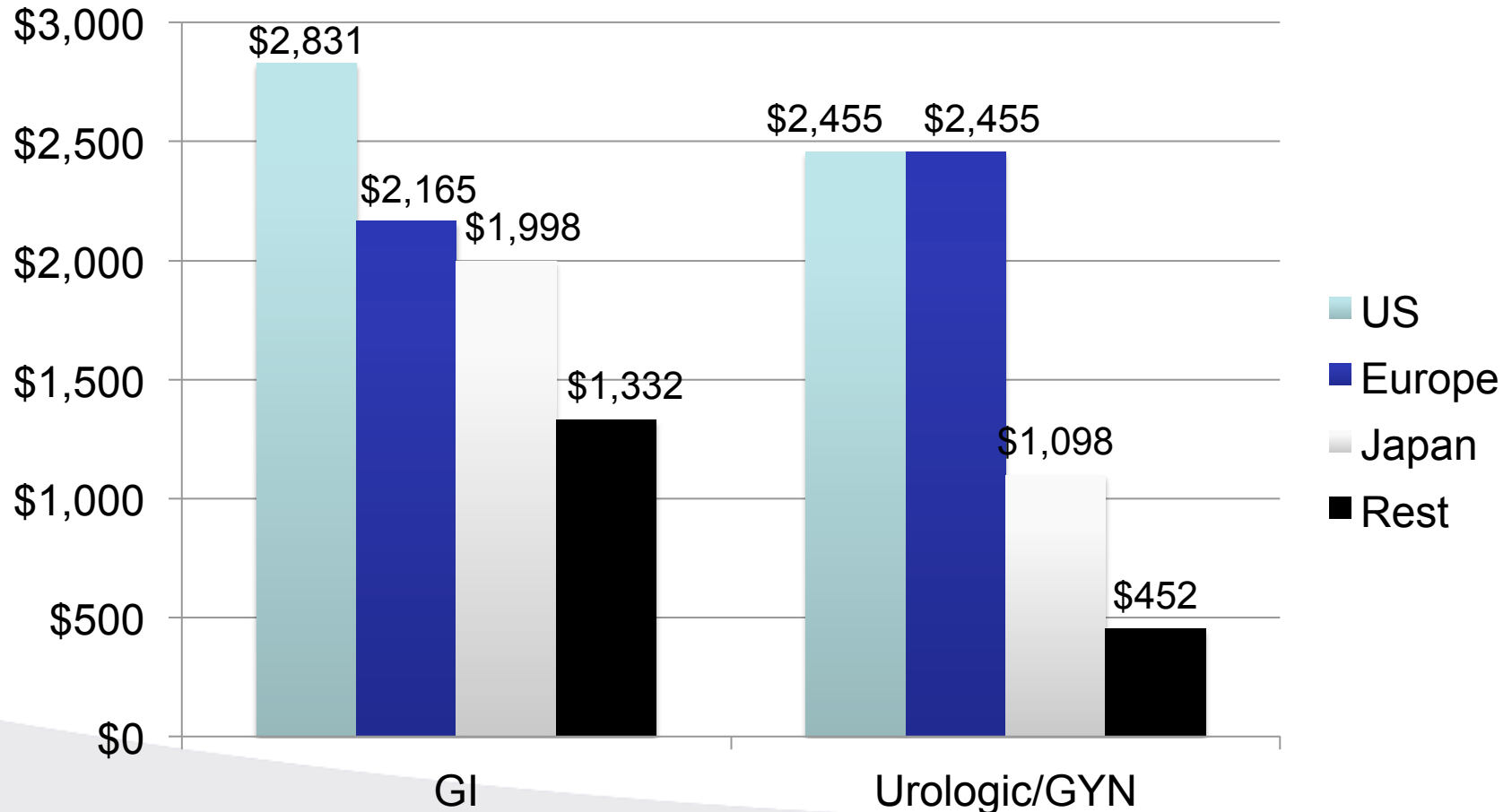
Case Study

First Validate the need

- Why do they need it?
- What is the best solution?
- What are the end user requirements?
- Why are they constrained?
- Is it worth doing?

Worldwide MIS Market

Market share by Country and Surgery Type, (USD in Millions)

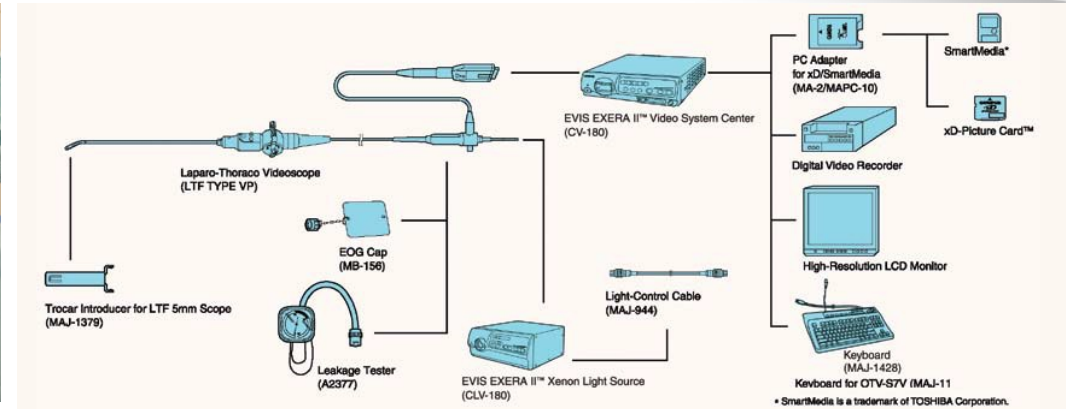


Global Market Overview

- 4.4 Million U.S. laparoscopic surgeries per year
- 7.5 Million laparoscopic surgeries worldwide
 - ~90% of cases performed in US and Europe
 - **~30 Million additional unmet need-developing market**



Current Market Technology



- A laparoscope is a “camera” used in minimally invasive surgery
- Rod lens system: shaft filled with glass, tower for video and fiber optics
- Video system: image sensor in shaft, tower for video and lighting
- Laparoscopic systems are expensive, complex and bulky
- Rod lens systems economic to maintain but antiquated and break easily
- New image sensor systems are expensive (capital intensive)
- Technology not currently feasible in developing world

Case Study

- Stakeholders



Case Study

- Surrogate Stakeholders



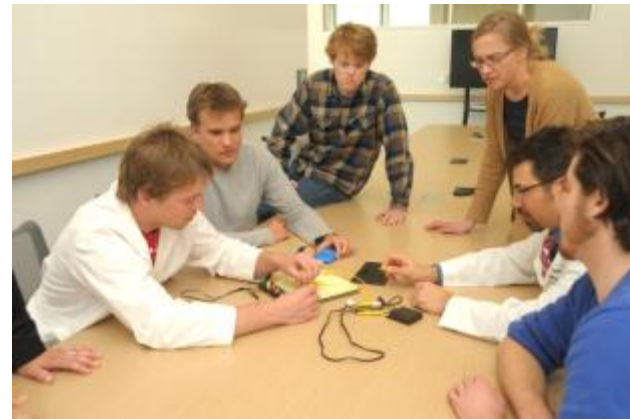
Case Study

- Clinical Investigation



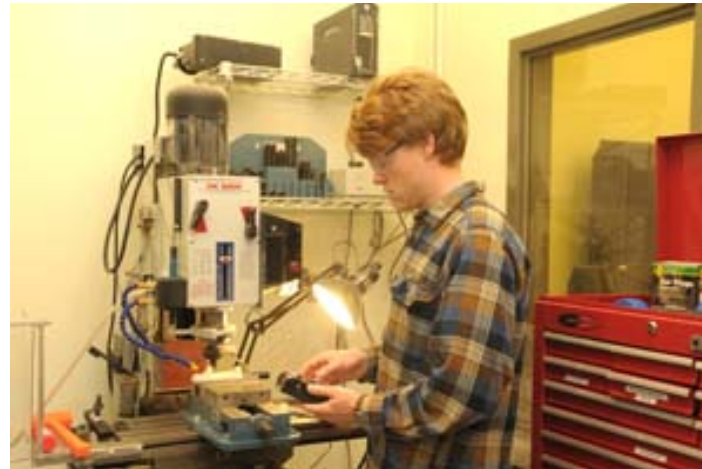
Case Study

- Ideation



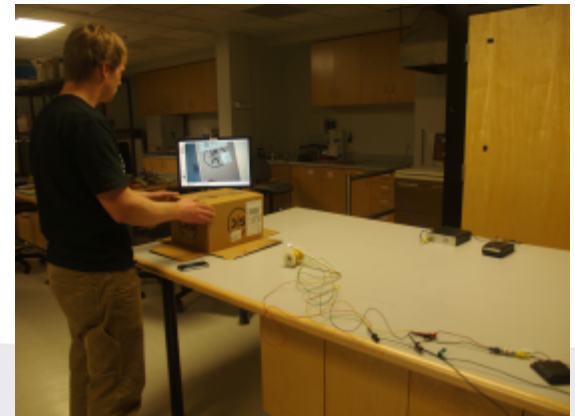
Case Study

- Prototyping

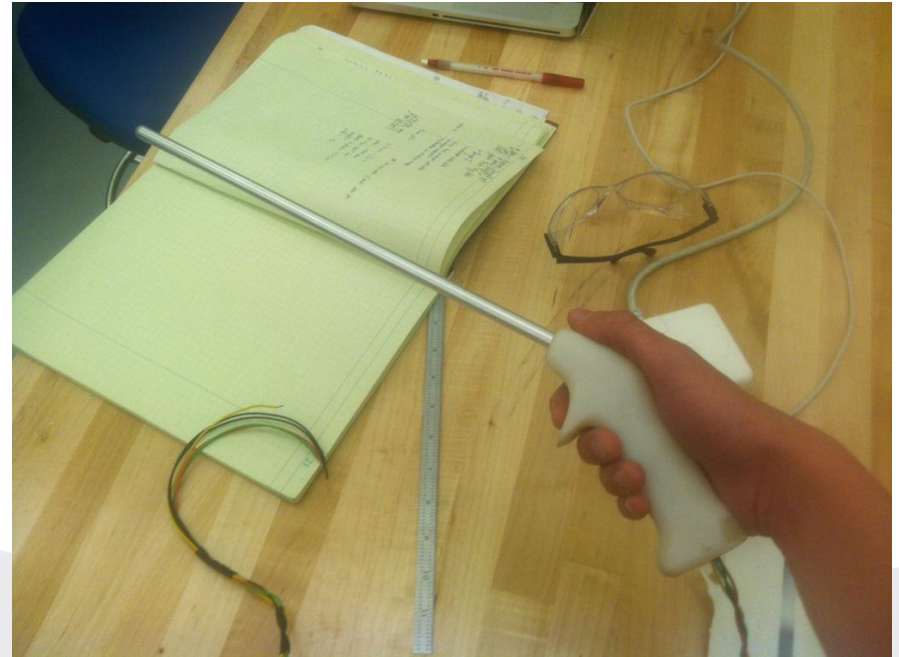
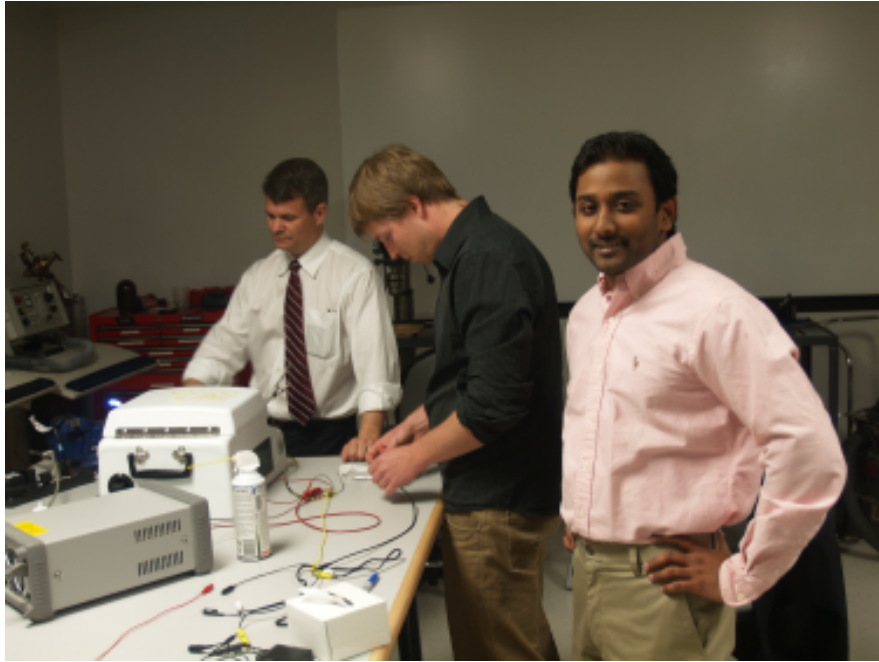


Case Study

- Verification

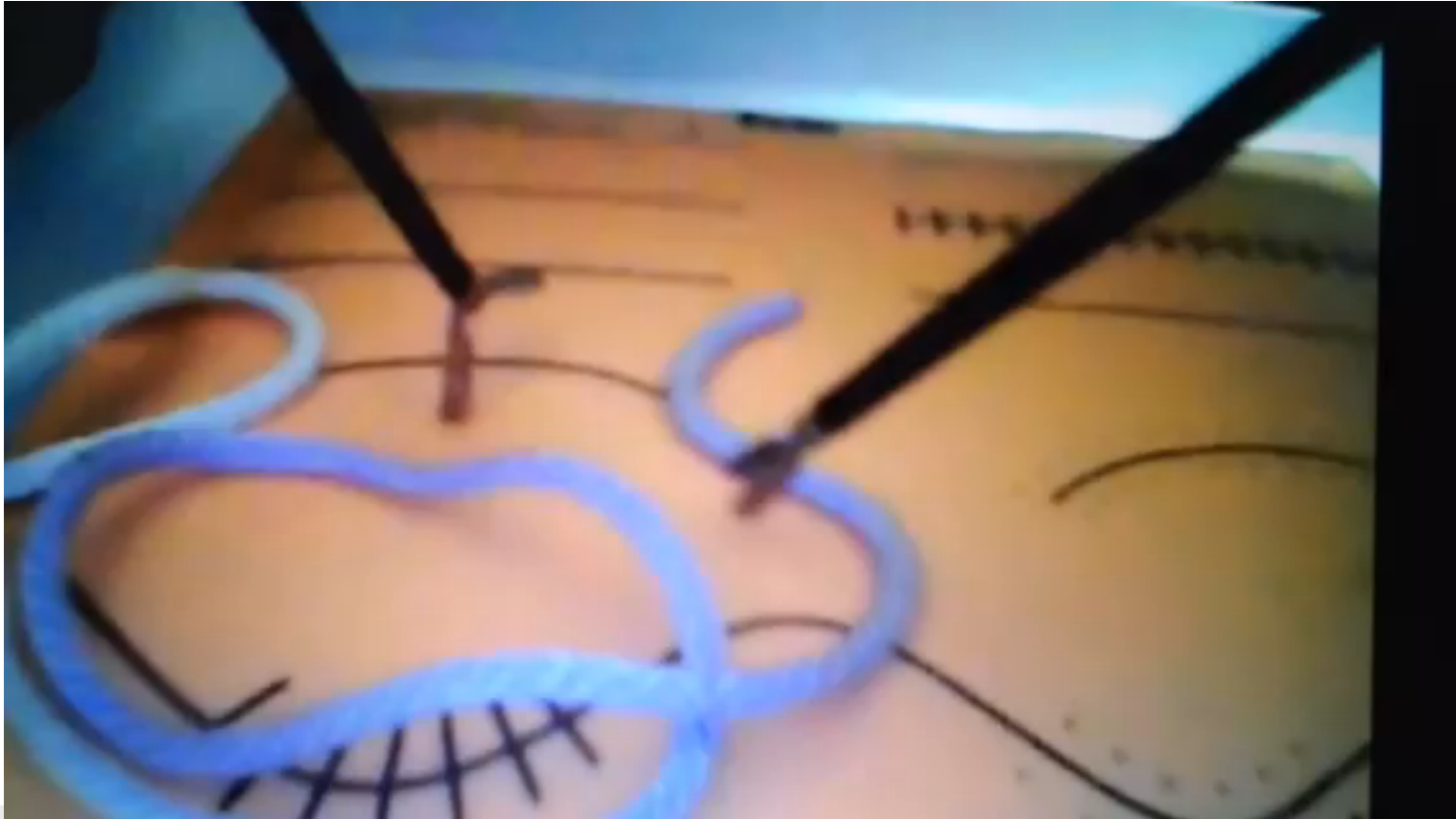


Case Study





Case Study



Solution



Mobile Laparoscope: simple, inexpensive & portable

- Image sensors and LED adapted from mobile phone industry
- No fiber optic cord required for lighting
- No tower for image processing and display
- Adaptable HDMI- image display interface to any technology

Case Study

Mobile Laparoscope

Team: Started Xenocor LLC

Raised >\$225,000 (3 grants)

Won two new venture competitions

Commercial design complete

Entering non-regulated OUS market



IMAGINATION+COLLABORATION=

**CENTER FOR
MEDICAL
INNOVATION**