# Robopsy™

## *A Low-cost, CT-Guided, Tele-Robotic Percutaneous Lung Biopsy Assistant*

*Patent Pending*

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## *Clinical Need*

- Lung cancer is the most deadly.
- Diagnosis requires biopsy.
- 125k percutaneous biopsies US
- Current procedure manual, iterative, time consuming.
- Difficulty targeting lesions <10mm.
- Precise imaging data not efficiently utilised.
- Risk of complications.

Goal: *"To create a needle guidance system to assist radiologists in targeting lesions during CT guided biopsies*

- Dr. R. Gupta, Fall 2004, MGH

## *Device*

- *Through prior art search.*
- *Studied MGH procedure.*
- *Function Requirements*
- *Deigned …*
- Mimics radiologists' actions (only 4 actuated DOF)
- Plastic Structure: Radiolucent; Moldable; Disposable; Lightweight, 10 cm form factor
- CT Machine Independent
- Grips, Angles, Releases needle
- Adhesive Patient Mounted
- Passive respiration / motion compensation.
- Remote operation
- Real-time position feedback
- Intuitive user interface

## *Testing*

- Commercial thoracic phantom
- Custom designed gelatin phantom with calibrated targets & simulated ribs
- Human factors analyses
- Iterative device design
- Porcine in-vivo testing
- Future – Human validation

## *Funding/Awards*

- 2004 2.75 Project - $4k
- 2005 MIT IDEAS - $5k
- 2005 MIT $1k
- CIMIT Grant – $100k
- 2006 BMEidea 3rd - $1k
- 2007 MIT $100K 1st - $30k