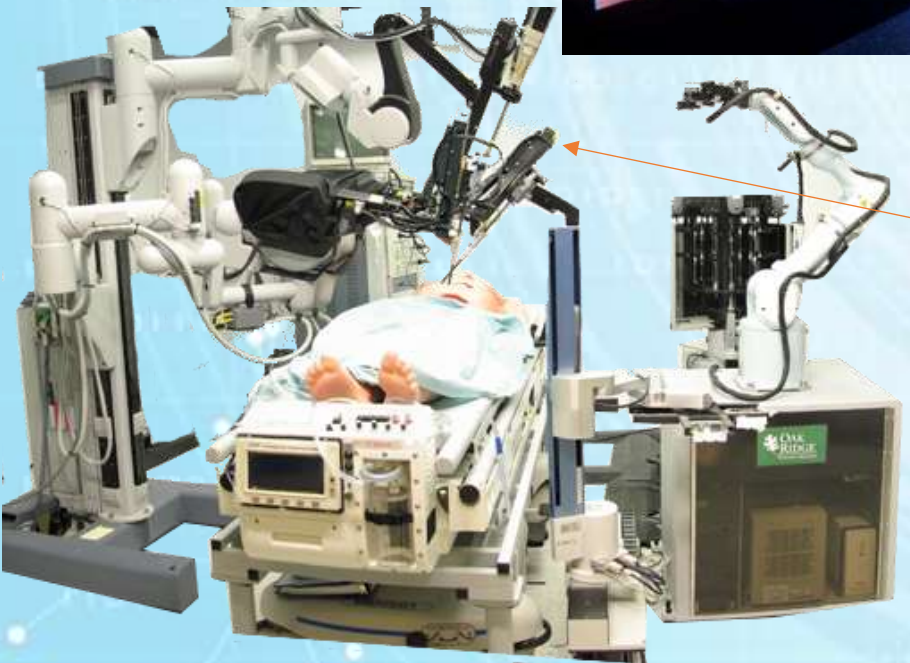


3-D Biopsy of Internal Organs

3-D imagery captured by cameras. This is what surgeon see's on console's monitor.



Robotic surgical arms

Doctor performing surgery using console with embedded computer to control robotic arms

- The cameras provide:**
- Highly accurate 3-D perception
 - 10X magnification
 - 40X sharper image

There is an increased demand to optimize surgical outcomes. However, low light and decreased visibility of the operation site during invasive surgery, such as in a biopsy, are major obstacles in accomplishing this goal.



Solution:

Two CCD cameras in 3-D array, an embedded computer with customized software, and robotic arms are used to perform robotic surgery. This method has been turned to as a means to reduce variability caused by human error. Additionally, it allows for surgery to be performed through minimally invasive, 1cm keyhole incisions.

The surgeon performs the surgery through the use of a console, which is a few feet away from the surgical table. With the camera's magnified 3-D imagery of the operation site, the surgeon is able to view and guide the robotic arms using the console's monitor.

This method of surgery causes less trauma to the body, minimizes scarring, and promotes a faster recovery time.