The Technology and Innovation

- Prototype for smart surgical robotic arm build using the AL5B robotic Arm
- Reciprocates the pilot line drawn by a surgeon
- Snapshot captured by a camera is processed using Hough transform then the processed image provides the user with numerous points
- User selects a specific region using Ginput command
- Next a trajectory that connects the joint angles is generated and robot motion is simulated in the GUI before execution with the expected resulting incision shown on screen
- The robot is instructed to execute the incision

Community/Industry Impact and Value

- This Arm is helpful to surgeon in surgery for accurate incision

Community/Industry Engagement

- Henry Ford Health System
- Beaumont Hospitals

Team Composition

- Sahith Nadipalli, ECE
- Akhilesh Kotla, E
- Iyad Kuwaitly, ECE
- Lakshminivasan Venkatesan, ECE

Learning Experiences

- Inverse Kinematics
- Image processing
- MATLAB GUI
- Arduino UNO Microcontroller Programming
- Prototype Designing

Further Research and Development

- Want to Improve for Automatic Image Registration
- Improve the Accuracy of the incision

Website: www.smartsurgicalrobot.wix.com/robo