Researchers at the University of South Florida have invented a method and associated apparatus for performing complex and long minimally-invasive surgeries remotely and without anesthesia.

As surgical procedures become increasingly sophisticated, new methods will be needed to realize successful surgical outcomes. For example, conventional laparoscopy places a limit on the number of devices that can be inserted inside the body. In addition, these devices have limited positioning capabilities and may compete or interfere with the preferred motion or position of other instruments.

Our inventors have developed a network of devices for in-vivo medical applications that enable minimally-invasive surgical procedures. The invention allows for a plurality of devices, such as imaging devices, power sources, cutting tools and other ancillary devices. One specific device that has also been developed by the inventors is an implantable wireless imaging device which frees up ports allowing the surgeons greater mobility or the use of additional tools. Furthermore, a surgeon is able to operate each of these devices via remote control. Additionally, they have developed a method to determine the maximum allowable transmitted power levels from devices in the body to achieve a required signal quality for remote control and data transmission. Together these systems and methods can dramatically improve the surgeons capabilities when performing minimally invasive surgical procedures.

ADVANTAGES:
- Increases the safety of surgery and minimizes patient anxiety
- Remotely controllable
- Minimally-invasive
- Does not require anesthesia

Network of Devices that Enable Minimally Invasive Surgical Procedures

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