

**S-273.**

**A RADIO SYSTEM FOR RELAYING THE PATIENT MONITOR AUDIO OUTPUT TO THE ANESTHESIOLOGIST DURING PEDIATRIC SEDATION**

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**INTRODUCTION:** The anesthesiology motto of “vigilance” reflects the need to be aware of a problem in order to correct it timely. The need for vigilance is particularly acute in the care of children in dental facilities where staff may have no experience with sedation. Pediatric dental facilities usually have distractions not seen in the typical sedation location such as crying children in neighboring operatories, questions from worried parents observing the procedure on their child, the whine of the 500,000 RPM dental drill, helicopter landings, running water, cell phone calls, and the need to leave the area for numerous x-rays to name a few.

To make sure that I hear my monitor’s audio output, I built a transmitter into the monitor stand and a receiver into my stethoscope. The system has worked well and comfortably for over 8,000 cases with only rare instances of radio interference.

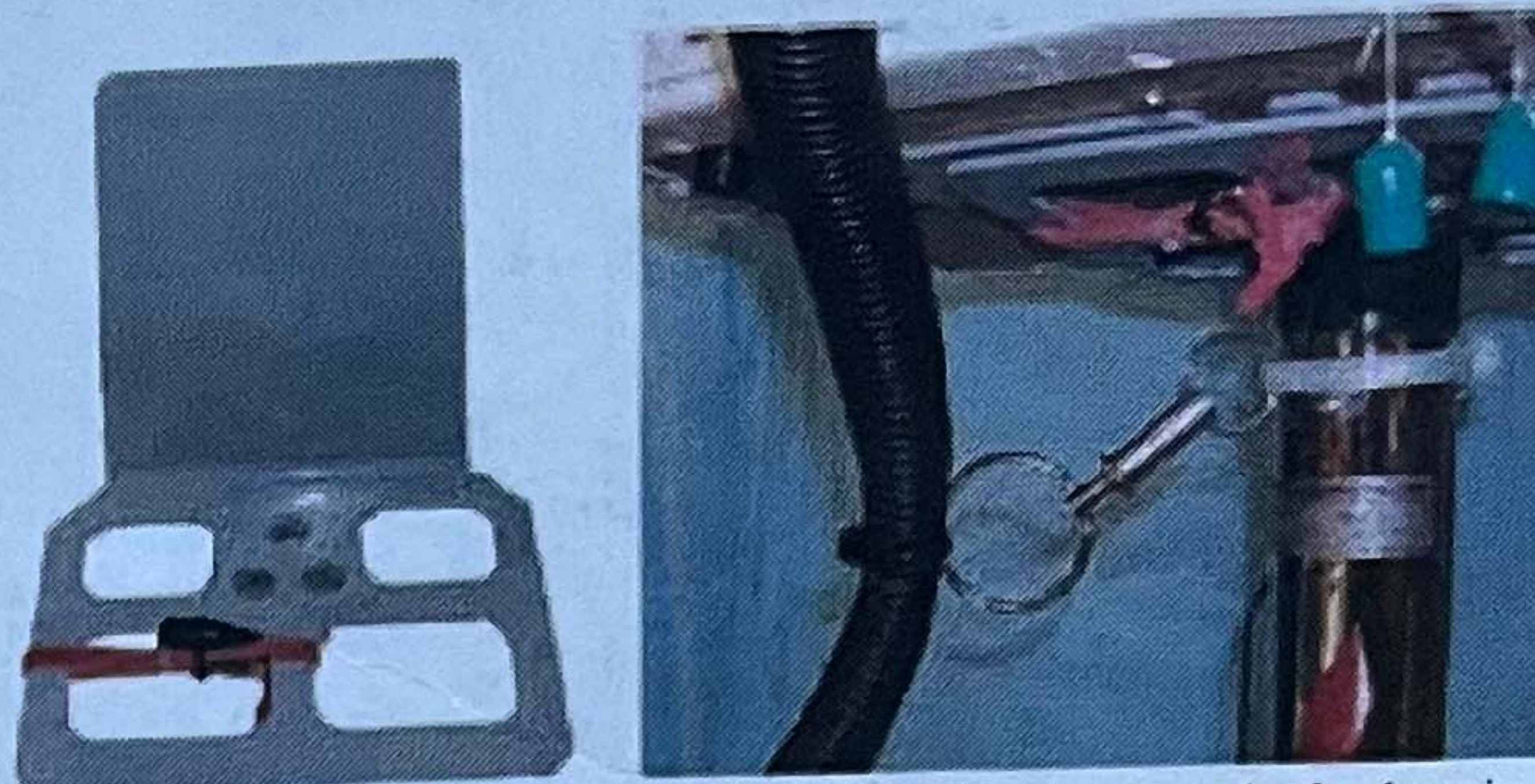
**METHODS:** The monitor is a 900 MHz Wireless Camcorder Transmitter/Receiver<sup>1</sup>. The transmitter requires a 1.5V input from an AA battery and has a 150 foot range. It is integrated into the monitor stand, so I installed a 1.5V DC transformer and ran the wires into the battery case of the transmitter and attached each lead to a screw inserted in the appropriate end of a 1/2” dowel cut to the proper size to act as a permanent “dummy” AA battery. Both transmitter and receiver are 2.0”x2.5”x0.5” and 1.5 ounces without the battery.

**RESULTS:** N/A

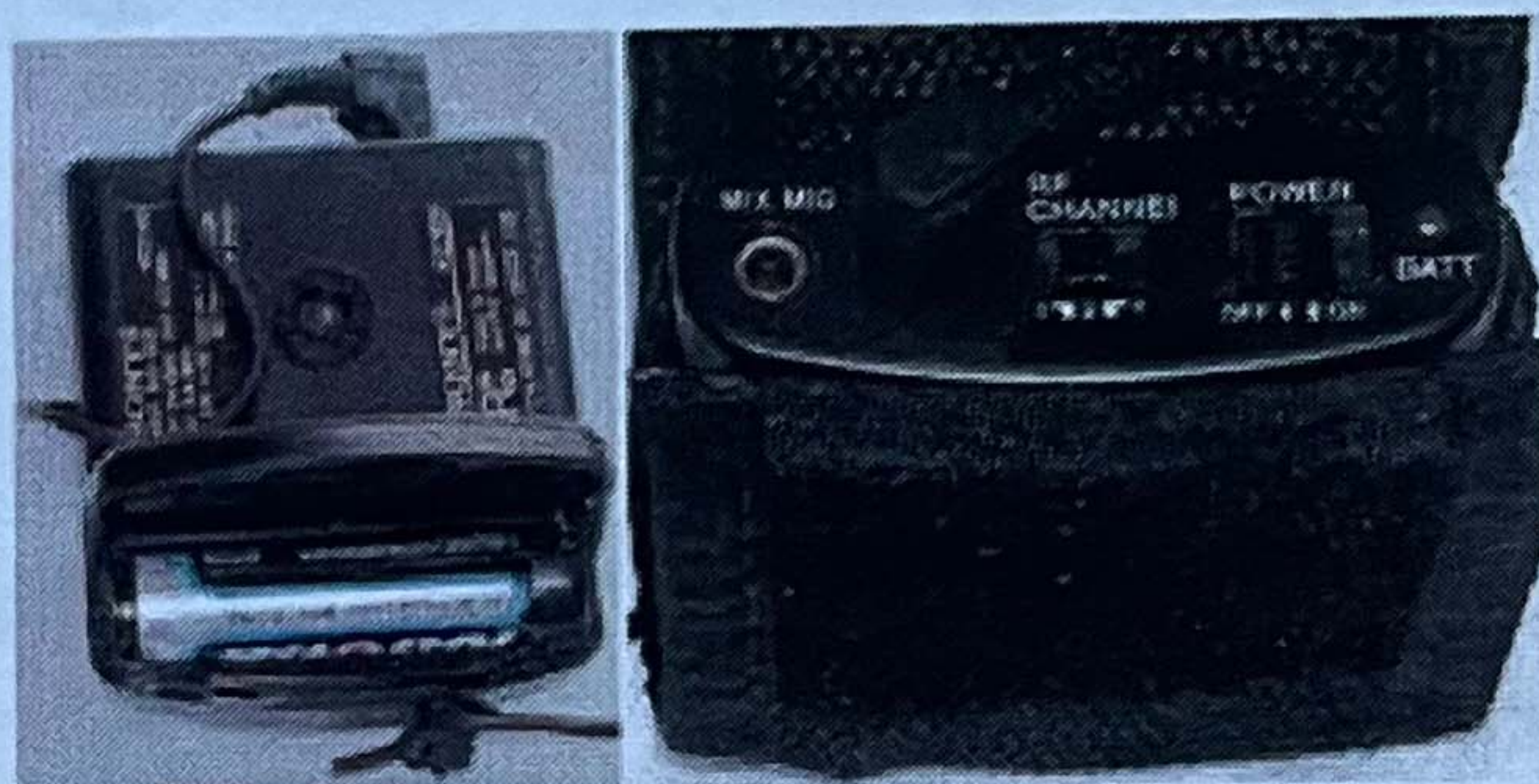
**DISCUSSION:** N/A

**REFERENCES:**

1. Sony Model WCS-999 Camera Mountable 900 MHz Lavalier Microphone System, \$99.99
2. EmTech Laboratories, Inc., 7745 Garland Circle, Roanoke, VI 24019, \$70.00
3. Merk Mini Nano Speakers, Merkury Innovations, 2006 Model: MI-SPNN, \$19.99



The transmitter has a long wire attached to its microphone, and, after locating the speaker on my monitor, I permanently mounted the microphone on the stand such that it is as close as possible the speaker. I adjust the monitor volume to control the intensity of the sound I hear with my earpiece. A low monitor volume setting works fine which keeps the beeping and alarms inaudible to the dental staff to not distract them. This should work with any monitor.



The receiver is powered by a single AA battery and can be set to one of three channels which needs to match that of the transmitter. To hear the sounds, I use a custom molded earpiece with a tiny powered speaker built into it (2). This connects to the audio out 1/8” jack of the receiver. If I do not want to wear the earpiece, I use a AAA battery powered speaker (designed for an iPod Nano) (3) that plugs into the audio jack.



The receiver sits in a BBC brand “belt pager pouch” with a Velcro closure that is attached to my stethoscope.



The earpiece needs to have a handle built into it to prevent the power wires from being used as a handle and eventually failing. To manufacture the earpiece, an audiologist needs to make an ear impression (EmTech will want you to send them the 1/8” mono jack and some cable. This can be cut from the bottom of the receiver since it is provided to interface with recording equipment which will never be used in this application).