Real-Time High Quality Video Audio Streaming to Academia

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INTRODUCTION

Increasingly, seminars and workshops held at Academia are incorporating live surgical sessions into the agenda as part of the sharing and discussions on the various medical techniques and advances.

OBJECTIVE

To design a system with capabilities to :

o Stream multiple live and high quality images to Academia.
o Capture images from one or more Operating Theatres (OT).
o Provide real-time interaction with surgeons during the transmission.

METHODOLOGY

Traditional way
o Lay physical cables from SGH OT to Academia

Problem
o Each OT will require own set of AV cables
o Difficult to coordinate and lay the cables
o Costly

Our Approach
o Install AV encoders and decoders at SGH OT
o Utilizing the existing SingHealth Data Network to transmit data, see Figure 1
o Reconfigure Academia AV system to process the data

Advantage
o Less costly and shorter time frame to implement
o Ability to stream real-time images from more than 1 OT concurrently with 3 camera views from each OT.
o Flexible to select the required views to display according to the seminar / conference programme, see Figure 2
o Surgeons at the OTs can choose to view or only listen to participants at Academia

Figure 1.
Install AV encoders and decoders at SGH OT;
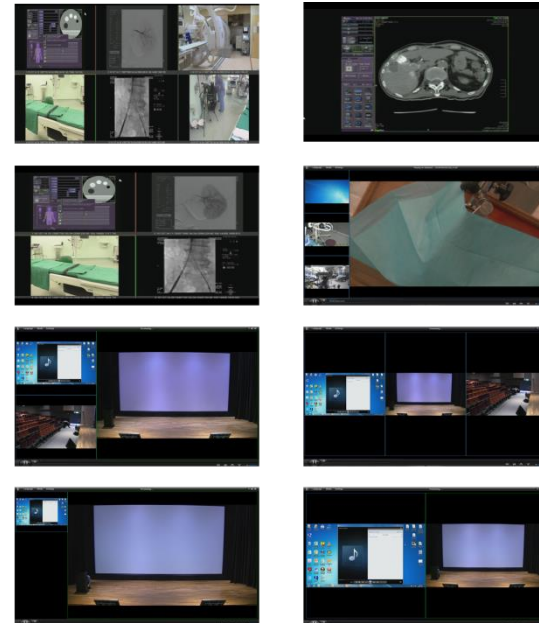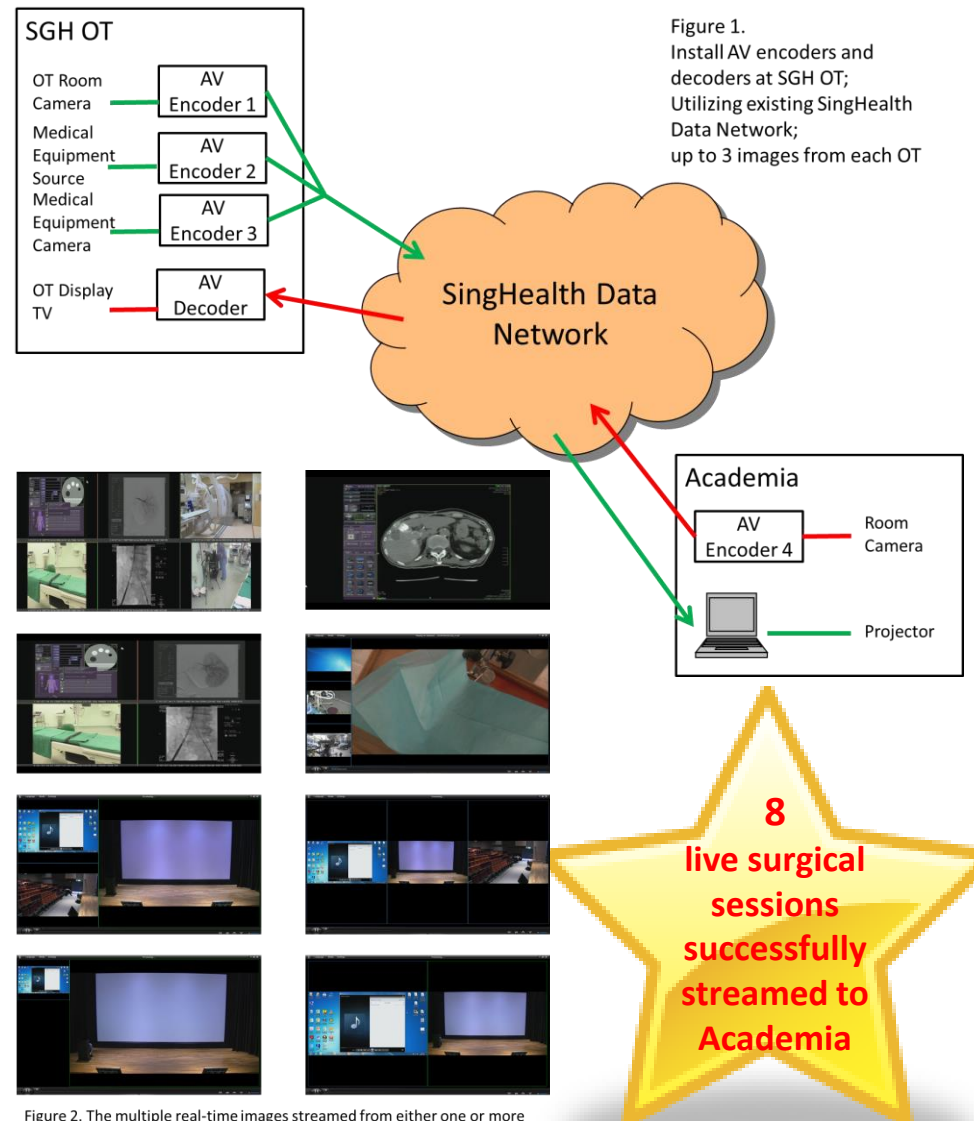Utilizing existing SingHealth Data Network;
up to 3 images from each OT

Figure 2. The multiple real-time images streamed from either one or more OT(s) could show activities such as different angles of the surgical process, patient monitoring parameters and other medical equipment display.

8 live surgical sessions successfully streamed to Academia

RESULT

o 8 live surgical sessions have been successfully streamed from SGH OTs to Academia during events
o Participants could view multiple real-time images, showing activities such as different angles of the surgical process, patient monitoring parameters and other medical equipment display
o Participants have clearer and discerning views of the surgery through the high quality images displayed
o Surgeons and participants can interact real-time during the OT session
o Participants have added option to view the real-time images anywhere with a laptop within the SingHealth Data Network

CONCLUSION

The new system has provided flexibility and enhanced the value and learning of the seminars and conferences held in Academia.