Scenario

Professor Antorini teaches an intermediate Italian course where he likes his students to use lots of visuals in their learning. However, it is often cumbersome to have students email him links or presentations for him to display on the class projector while students present. Alternatively, students need to hook up their own laptops which takes time away from learning.

By using the *AMX Enzo*, which had been installed in his classroom, he is able to let the students prepare their presentations on their own mobile devices or laptops and then wirelessly connect to the AMZ *Enzo* to display their presentations and control the display from their mobile devices while presenting. For example, students had to find a painting or sculpture by an Italian artist and give a short presentation about it. Using the *AMX Enzo*, students were able to find online images of the piece of art as well as research the artist, before displaying the art to their classmates directly from their laptops or mobile devices.

Another feature of the *AMX Enzo* allows for four individual devices to display on the screen simultaneously. Professor Antorini uses this to pose questions to groups of students who then type out their responses and display them on the screen. The groups can then read each other's responses to critique and offer suggestions for corrections.

1. What is it?

A wireless content sharing device that allows users to share screens from Mac and PC laptops and Android and iOS devices.

Figure 1: AMX Enzo front and back views

2. How does it work?

The *Enzo* is a small box about the size of an 8-port network switch. It contains a processor and Android operating system with a custom user interface. Users install the MirrorOp app on their device to connect to the *Enzo* and transmit their screens.

3. What are the key features?

During limited testing, the *Enzo* proved very reliable. The user interface is reasonably simple and well laid out, but may require some training for end users to master. Shortcuts to frequently used websites and services can be created in a dedicated menu. Users may retrieve documents from online repositories such as DropBox by logging in with their credentials. Common document formats from the MS Office family are supported along with .PDF files. Files may also be accessed directly from a USB drive or portable HDD through the USB port. Whenever the *Enzo* is restarted, all previous user data is purged, which may be desirable from a security standpoint. It may also be accessed for control via its IP address, allowing for remote support. Wireless access can be controlled by setting a randomly cycled PIN code or a user-selected permanent code. Up to four users may transmit their screens to the *Enzo* simultaneously. It allows presenters to share copies of their presentation materials housed in DropBox by generating a link for download that is shared on-screen in text form and via QR code. In addition, the *Enzo* allows for watching live streams from an AMX H.264 encoder over a private network just like it enables video conferencing with an additional AMX Sereno USB webcam/microphone combo. Power for the *Enzo* comes through Power over Ethernet (PoE).
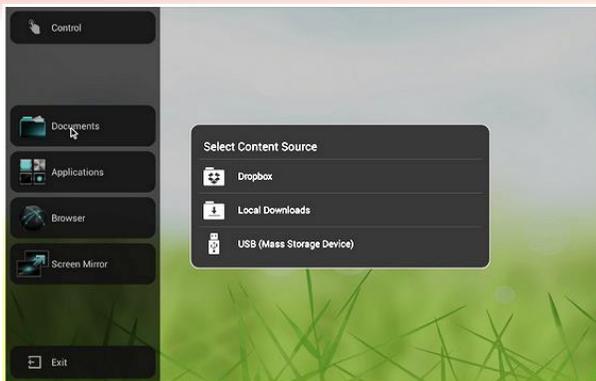
Figure 2: AMX Enzo user interface

4. What are the potential uses on the ISU campus?

- Conference rooms
- Classrooms
- Collaborative spaces

Figure 3: MirrorOp connection interface

5. What are the implications for teaching and learning?

The *Enzo* will allow some distinct pedagogical opportunities in the classroom but will require the instructor to learn how to use it and to use appropriate methodologies and pedagogies. One key advantage is the equal access from Android and iOS devices and Mac and PC laptops, making it compatible with the vast majority of student mobile devices and computers. As mobile devices become increasingly capable, students are likely to do more of their learning and presenting from a mobile device or from an online document repository. The *Enzo* supports all of these, with the exception of mirrored video.

6. What are the downsides?

Online video must be accessed from the *Enzo's* own web browser and does not mirror from user devices. Videos stored locally on user devices do not transfer. Devices for which there are no compatible MirrorOp apps, such as BlackBerry and Windows Phone, cannot transmit to the *Enzo*. Sometimes, larger complex documents do not display and scroll smoothly when opened directly on the *Enzo*. Instructors will probably need training on the user interface and features. For more advanced control of the *Enzo*, an AMX Netlinx Controller is needed.

One product or solution is rarely the best for all possible use scenarios and not all scenarios have been tested in this limited review. IT Services continues to review the broad adoptability for campus for this type of technology and other similar products exist. If you are interested in using this type of technology, please contact us so that we may help you review the available options and ensure that any product you choose will work with the IT infrastructure.

7. What are the key technical specs?

- Two Ethernet ports
- 4 USB 2.0 ports
- HDMI out
- Audio out
- RS-232 control port
- PoE power supply required
- Compatible with USB keyboards and mice, including wireless Logitech products with a USB receiver.

8. Where can I find out more?

Visit the *AMX Enzo* product page
http://www.amx.com/enzo/.

You may also contact Jacob E. Larsen (jlarsen@iastate.edu) in IT Services to discuss how the *AMX Enzo* can be used with your students.

Additional legal information.