

Application Story

Singapore's Republic Polytechnic takes flight with new Virtual Aerodrome Laboratory powered by Christie projection solutions



Christie DS+6K-M projectors deliver realistic aviation experience for ST Electronics (Training & Simulation Systems)'s Air Traffic Control Simulation at Republic Polytechnic

Students enrolled in Republic Polytechnic's Diploma in Aviation Management (DAVM) now have the opportunity to experience various operational scenarios and real-life simulations without ever having to leave campus. And while it may feel like they're peering down from a modern airport control tower – it's a setting much closer in real life to a classroom.

This immersive and unique experience is made possible thanks to the new Virtual Aerodrome Laboratory that was developed by ST Electronics (Training & Simulation Systems) in October 2013.

The DAVM aims to equip students with a combination of specialist and management skills to prepare them for various roles in airport terminal operations or as an aircraft crew member.

Customer:

Republic Polytechnic

Location:

Singapore

Industry/Market:

Aviation/Education

Partners

ST Electronics (Training & Simulation Systems)

Requirements:

- Rich, dynamic and detailed imaging
- Embedded warping, blending and colour matching
- High efficiency and low cost of ownership

Summary:

Launched in October 2013, Republic Polytechnic's Virtual Aerodrome Laboratory was set up to enhance students' understanding of airport management, airport planning and design and air traffic management. The Virtual Aerodrome Laboratory (VAL) offers hands-on opportunities for learning and training in a realistic environment. ST Electronics (Training & Simulation Systems) was identified by Republic Polytechnic for their training and simulation expertise to develop the first-of-its-kind laboratory installed in a Singapore institute of higher learning.

Products:

[Christie DS+6K-M SXGA+ DLP projectors](#)

Results:

In line with the requirements from Republic Polytechnic for a simulation system with a high degree of realism for the trainees, the view delivered to students training at the Virtual Aerodrome Laboratory is breathtakingly realistic, vivid – and to many, familiar. That's because the facility simulates the view from the control tower of a commercial airport. Students in Republic Polytechnic's Diploma in Aviation Management course now have the opportunity to experience various operational scenarios in an immersive and realistic environment.



“Subjects covered in the diploma curriculum are related to airport and airline management,” said Ramanathan Mohandas, Programme Chair, Diploma in Aviation Management. “Upon graduation, students can take up roles such as airport managers, airline managers or even technical roles in aviation such as air traffic control, piloting and more.”

In line with this, the Virtual Aerodrome Laboratory was set up to enhance students’ understanding of airport management, airport planning and design and air traffic management. The Virtual Aerodrome Laboratory (VAL) offers hands-on opportunities for learning and training in a realistic environment. Put another way, Republic Polytechnic wanted to create an environment where students could experience the different aspects of aviation management first hand.

Based on this need, ST Electronics (Training & Simulation Systems) was identified by Republic Polytechnic for their training and simulation expertise to develop the first-of-its-kind laboratory installed in a Singapore institute of higher learning. The challenge for ST Electronics (Training & Simulation Systems) was to develop the laboratory according to the high standards and specifications needed to provide students with a holistic and immersive learning experience. ST Electronics (Training & Simulation Systems) was also mindful that in order to provide an added dimension of realism to the training, there would have to be a keen attention to detail.



Given the requirements for digital display technologies that would create an immersive environment for the students in the DAVM course, ST Electronics (Training & Simulation Systems) selected Christie for its quality projection and visual solutions. With Christie’s [M Series Projectors](#), ST Electronics (Training & Simulation Systems) developed a system that would realize the rich, dynamic and detailed imaging necessary for the training and simulation in the Virtual Aerodrome Laboratory.

“Scenarios can be created to facilitate interactions between various types of airport vehicles including planes, fire engine and ground vehicles,” added Mohandas. “Students can role-play as ground controllers, air traffic controllers and ground entity controllers to gain practical skills. It also helps provide students an immersive learning experience ranging from flight operations, to aviation safety and security and air traffic management.” added to Mohandas.

“We knew this was an undertaking that called for a simulation system with a high degree of realism for the trainees. It also required a projector solution capable of delivering versatility without sacrificing quality,” said Michael Aaran, Manager of the Learning Systems Division at ST Electronics (Training & Simulation Systems). “The high-performance and feature-rich standards provided by the Christie projectors were the right solution for the Virtual Aerodrome Laboratory. The results of our collaboration are a state-of-the art laboratory for students of the Aviation Management course to have a holistic learning experience.”



In adopting a solution-orientated approach, multiple discussions were held between Christie and ST Electronics (Training & Simulation Systems) to understand the specific needs and requirements of Republic Polytechnic. Christie also took the extra effort to have a site visit prior to the development of the Virtual Aerodrome Laboratory. This provided them with a better understanding of the site constraints so that the visual system design parameters were thoroughly evaluated, designed and custom-built for the best fit.

“Embedded warping, blending and colour matching, along with built-in portrait capabilities, provided even more installation flexibility,” added Aaran. “We are pleased with how the Christie projectors have performed as an important component of the finished product.”

Indeed, the finished product is a sight to behold. The Virtual Aerodrome Laboratory more closely resembles the scene of a busy metropolitan airport control tower than a classroom. It boasts a screen with a 120-degree field of vision, utilizing three of Christie’s projectors to display the simulated view from above.

Noted as a flexible, efficient 3-chip DLP digital projector, the [Christie DS+6K-M](#) is easily tailored to meet the needs of the end user. The projector comes in a sleek, compact chassis and is equipped with a full set of options, including 2D and 3D capability.

It also contains a dual lamp system, offering high efficiency and low cost of ownership. In the case of the Virtual Aerodrome

Laboratory, this equates into a display that delivers full brightness while using less power.

The [Christie M series projectors](#) additionally come with features such as [Christie Twist](#) and [Comprehensive Colour Adjustment \(CCA™\)](#) to ensure unparalleled edge blending capability and well matched colour uniformity across the entire display. This is a critical benefit for larger or more complex simulation projection projects like the one undertaken by Republic Polytechnic.

Ultimately, the view delivered to students training at the Virtual Aerodrome Laboratory is breathtakingly realistic, vivid – and to many, familiar. That’s because the facility simulates the view from the control tower of a commercial airport.

“It’s an honour to team up with our partner, ST Electronics (Training & Simulation Systems), on such an important project – and one that’s benefitting Singapore’s next generation of aviation professionals,” commented Barry Lewine, Director of Sales, VE Solutions, Christie Asia Pacific. “We are pleased to contribute to the development of Republic Polytechnic’s Aviation Management students and help arm them with the necessary tools and expertise to continue their career path.”

With Republic Polytechnic’s Virtual Aerodrome Laboratory cleared for take-off courtesy of ST Electronics (Training & Simulation Systems) and Christie, the sky’s the limit – literally.

Images courtesy Republic Polytechnic

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