e-con Systems

Think Camera. Think e-con.

Perfecting a camera system to power a next-gen classroom solution of a top US-based telepresence robots provider

e-con Systems helped a leading US-based provider of telepresence robots to create new-age classroom interactions between teachers and students. The cutting-edge camera system provided users with exceptional audio and video experience to seamlessly collaborate and communicate remotely – from their location of choice.

About the client

The client is a US-based robotics company that offers demand-driven solutions- backed by cutting-edge development and manufacturing processes. It makes them a cost-effective and cutting-edge partner of choice to transform how people connect to classrooms.

Key challenges and customer's expectations

The client wanted a world-class camera system to provide superior audio and video experience to enable students to actively engage and connect outside the four walls of the classroom. Hence, maintaining high-quality audio and video for both the operator and those who were in remote locations was of utmost importance.

One of the key challenges was to develop a camera system that could capture and identify images based on color, as well as capture barcode readings. It also needed to be equipped with high sensitivity rate and low noise capabilities for maximum visual quality while streaming.

Other unique client requirements were:

- High resolution 4K at 30 fps for excellent image and video streaming
- Software compatibility with Open Source OS and Linux

Selection of the camera module

e-con Systems selected See3CAM_CU135 – a 13MP fixed-focus 4K USB camera board with superior low light performance and iHDR support. The 4K board camera was also backward compatible, at 30 FPS, with USB 2.0 host ports that was in line with the client's use case requirements.

With high-quality video provision, users would be able to participate in classroom activities that have strong visual components like blackboards, worksheets, presentations, etc.

How e-con Systems delivered a hassle-free solution?

e-con Systems provided the off-the-shelf See3CAM_CU135 camera module, along with customized firmware support. We adjusted the MJPEG Q-factor to control the video

compression ratio to achieve reliable video streaming over a wireless interface with limited bandwidth.

The customer successfully launched the product in the market, with mass production (consistent volume order) every quarter.

Business benefits

- Off-the-shelf module and customized firmware support – quick to start mass-volume production

- Cost-effective end solution that only required low bandwidth to operate

- High resolution 4K image and video streaming – leading to memorable classroom experiences

Talk to us

Would you like to know more about how you can change how teachers and students communicate and collaborate by adding vision to your telepresence robots?

Connect with our product manager, who worked on this vision-based solution, and get started!

Ranjith Kumar
Email: ranjithkumar@e-consystems.com
Phone: +1-408-766-7503

About e-con Systems™

e-con Systems has been a pioneer in the embedded vision space; designing, developing and manufacturing custom and off-the-shelf camera solutions since 2003. With a team of 300+ extremely skilled core engineers, our products are currently embedded in over 350 customer products. So far, we have shipped over 2 million cameras to the United States,

Europe, Japan, South Korea and many more countries.

Our cameras are suitable for applications such as autonomous mobile robots, smart agricultural devices, medical diagnostic systems, smart checkouts/carts, sports broadcasting systems, industrial handhelds, drones, biometric systems, etc.

Our wide portfolio of products includes MIPI camera modules, GMSL cameras, USB 3.1 Gen 1 cameras, TOF cameras, stereo cameras etc. e-con offers a wide variety of cameras with low light performance, HDR, global shutter, etc. These cameras range from a resolution of 2MP up to 18MP.

We are also powered by a strong partner ecosystem to offer end-to-end vision solutions, including sensor partners, ISP partners, carrier board partners, etc.

What sets e-con Systems apart is our deep expertise in building customized product designs while ensuring rapid prototyping and custom modifications in camera hardware and software, including form factor modifications, ISP tuning, carrier board development, lens calibration, and much more.

By empowering machines to see, e-con Systems looks to create a world where humans have enriching life experiences so that they can make the world better.

Disclaimer and copyright statement