e-con Systems

Think Camera. Think e-con.

Helping a leading provider of eye care devices enhance their vision-powered solutions

e-con Systems worked with one of the leading global eye care device companies to upgrade one of their devices with a high-performance camera. It would help optometrists and ophthalmologists record the treatment process while documenting eye care issues or other anomalies in the eye that affect vision. We matched their expectations regarding speed, processing power, and storage of electronic data.

About the client

The client is a leading global provider of eye care with several years of experience in helping people see better. Based in the US, they deliver innovative eye care devices – powered by embedded cameras. They also provide surgical and vision care solutions.

Key challenges and customer's expectations

The client presented an exciting challenge to us since they required a unique solution to treat a particular ocular condition. Hence, they had to upgrade the device with a camera that delivered high-quality ophthalmic diagnostic imaging to improve the understanding, diagnosis, and treatment of various ocular disorders.

In addition to selecting the right-fit camera, the client also wanted to increase the processing capabilities of existing components. Some of their requirements were:

- High performance - Visible / NIR spectrum
- Video recording and simultaneous preview
- Wireless real-time video streaming
- Low power consumption, with fast boot time (Linux)

Selection of the camera module

A crucial part of the camera selection process involved making sure the imager was consistent and accurate – since we were working with a medical diagnostic equipment. Recording and documentation had to be done in the visible light range, whereas diagnosis and treatment needed the NIR range. So, we had to be sure that the camera module had a good visible range and a strong NIR performance assurance along with image sharpness.

e-con Systems ended up choosing e-CAM30A_CUMI0330_MOD for the design, considering it met all the above requirements. Its imager performed well in the visible light range – along with much more robust performance at 850nm wavelengths. The AR0330 sensor settings were also optimized to enhance image sharpness and performance in short exposure times.

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

This project epitomized our ability to bring to life an innovative vision-powered concept – from design to production. e-con Systems worked on complete product hardware design - interfacing the camera with iMX6 while optimizing the module's power and performance.

e-con Systems formed a cross-functional team [camera, product development services, and embedded software teams] to coordinate with the client, build the hardware baseboard, customize the camera, and ensure that the finished product was ready in the scheduled timeframe.

The client also received the 510K FDA approval, which is a premarket submission made to FDA to demonstrate safety and effectiveness, for their end product. One of the reasons for it is our expertise in ensuring quality in the manufacturing process – including working only in in ISO13485-certified facilities.

Business benefits

- Off-the-shelf camera solution – led to shortened product development cycles
- Custom-built for specific use cases – resulted in faster volume production within the expected time frame
- Fully-optimized pipeline for maximum storage, along with buffer management for better performance during capture of multiple images
- Improved diagnosis – thanks to sharper imaging – with the modified LTM curve

Talk to us

Would you like to know more about how you can get an off-the-shelf camera solution customized to help ophthalmologists revolutionize eye care and diagnosis?

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

Balaji S

Email: balaji@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