



Case Study

Freescale Processor Puts Filmmaking Robot into the Action

With AIME, an innovative robotic camera auto-framing system, videographers can capture subjects on the move with the touch of a button

Ready, AIME, Shoot!

Anyone who's ever tried to shoot video of a subject in motion knows how hard it can be to frame the shot and keep it framed amid all the action. AIME is the auto-framing robot that provides the perfect assist, automatically aiming the camera to keep the subject perfectly framed. Easily attached to virtually any smartphone or camera, AIME makes hands-free shotmaking simple, by panning and tilting the phone or camera to follow the subject. From sporting events to family fun, AIME takes the worry out of capturing those special moments on video.

Here's how it works: While AIME attaches to the phone or camera, a beacon called EmIT attaches to whoever or whatever AIME is going to track. AIME sees the signal EmIT pulses, locks onto it and follows it – panning and tilting to stay with the subject no matter what. The push of one button sets everything in motion and keeps it going with no other effort.

If that sounds like a fantastic idea, it is. AIME won the Most Innovative Product award from Videomaker at the 2014 International Consumer Electronics Show (CES). And with a starting retail price under \$300, the technology is accessible to most amateur video enthusiasts.

Sophisticated Technology Keeps It Simple

Behind AIME's remarkably simple one-button operation lies extremely sophisticated processing technology. A custom-designed "brain board" based on the Freescale i.MX 6Quad applications processor, based on the ARM® Cortex®-A9 core, runs at a blazing 1GHz per core, enabling AIME to run complex image-processing algorithms.

In addition to the board, AIME includes a total of 6GB of memory for algorithm storage, a custom-image sensor for tracking the EmIT signal, and custom worm gears and encoders to control movement. AIME's tough, too, with a design that can withstand thousands of pounds of force, as well as protecting the sensitive gears against damage due to being dropped or jolted.

Challenge

Enable people shooting video at home or work to easily frame a moving subject and keep it framed, no matter what

Solution

The Jigabot AIME auto-framing robot, attached to a smartphone or camera, locks onto a beacon signal from a subject to track movement.

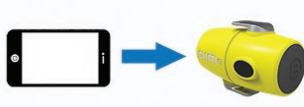
Benefit

Affordable, durable, and easy to use, AIME enables hands-free, automatic panning and tilting to perfectly frame any action shot.

1 Attach an emitter to a subject.



2 Attach a camera to AIME.



3 Power on AIME & press camera record!



Jigabot Makes It Possible. Freescale Makes It Work.

When video subjects are moving quickly and unpredictably, smoothly capturing what they're doing requires intense video processing power. That's what Jigabot's AIME auto-framing robot delivers, thanks to the Freescale i.MX 6Quad applications processor. The processor performs digital signal processing and correlates inputs from multiple points, and then uses the information to tilt the base mounting for whatever camera is being used. It has the processing power to handle the complex algorithms required for smooth motion control of the motors that move the base, enabling AIME to automatically follow the subject's movements, for a perfect shot every time.

The i.MX 6Quad is also highly integrated, so it can pack a tremendous amount of processing power into an extremely compact form factor. The small size, light weight and sophisticated functionality combine to give AIME users the freedom to shoot video in virtually any location, as well as the ability to do far more than other offerings, including automatically panning and tilting simultaneously to more closely track movement in real time.

Freescale and its Premier Partner Adeneo Embedded® helped get AIME to market quickly and affordably. By using Freescale's Smart Application Blueprint for Rapid Engineering (SABRE) board to simplify product development and leveraging the Freescale Software Services team, Jigabot was able to complete the design in less than two months.

"Freescale technology made AIME possible, but it wasn't just the i.MX 6Quad applications processor," said Jigabot CEO Rick Stout. "Freescale consulting services enabled us to get the product up and running and to have a demo available in time for CES. We were very impressed with the support services."

Freescale: Innovation for Consumer Applications

Freescale delivers system solutions, including reference designs, to help develop cutting-edge consumer applications. Our technology includes a complete range of microcontrollers and application processors built on ARM technology with broad operating system support. Among these are i.MX application processors for Android and Linux operating systems and Kinetis microcontrollers, which support a range of Real Time Operating Systems (RTOS) such as Freescale MQX™. Add to that our sensing solutions – designed with the right combination of high-performance sensing capability, processing capacity and customizable software. With a comprehensive ecosystem of tools, software, technology and services, Freescale helps facilitate innovation and shorten your design cycle. Freescale also offers a formal product longevity program ensuring that a broad range of program devices will be available for a minimum of 10 years.*



Freescale Technology for AIME

- i.MX 6Quad applications processor

Freescale Development Tools for AIME

- SABRE board for smart devices reference design based on the i.MX 6 series

Jigabot: Technology for Consumers from Filmmaking Professionals

Founded by professional filmmakers with a passion for art and technology, Jigabot, LLC develops software-driven robotic devices for home, work and play. Jigabot's flagship product AIME is a robotic camera auto-framing system for smartphones and cameras that automatically tracks a moving subject in real time. Founded in 2012, Jigabot is headquartered not far from Park City, Utah. For more information, visit jigabot.com.

*These products are/or may be supported by Freescale's Product Longevity Program. For Terms and Conditions and to obtain a list of available products please see: freescale.com/ProductLongevity.

To learn more about how AIME is powered by Freescale technology, visit freescale.com/jigabot