

New technology puts hand-held projectors within reach

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Pocket-sized projectors capable of screening movies from a laptop or mobile phone could be on the market within three years, following a new deal agreed by the University of Cambridge.

The global electronic components manufacturer Alps Electric Co., Ltd has been granted an exclusive license to the University's core patent for a revolutionary holographic video projector technology, developed in the Department of Engineering.

The company intends to manufacture miniature projectors based on the University's patented technology that will be highly energy efficient, will always be in focus and will be extremely robust. These qualities would make them ideal for building into laptops, mobile phones and all manner of devices.

The technology works by converting the image to be projected into a phase-only holographic pattern. This pattern is displayed inside the projector on a small, fast, high-definition liquid crystal over silicon (LCOS) panel. A laser is trained on to the panel. The light bouncing off each of the millions of points of the pattern interferes to reconstruct the original picture on a conventional white screen, the office wall or any convenient surface.

The lasers are very efficient and the holographic technique ensures that virtually all of their light can be used to reconstruct the projected image.

Alps Electric is working in close collaboration with the Department of Engineering to refine the technology, as a strategic partner in the Centre for Advanced Photonics and Electronics (CAPE). The collaborative team has built an impressive prototype which was demonstrated to great acclaim at the ALPS SHOW in Tokyo earlier this year. This major project continues apace with the experienced team of inventors in the Department working with a top-flight team of Alps Electric researchers and production engineers. The industrial side of the project is led by Alps Electric Chief Engineer in the UK, Jamieson Christmas, a Cambridge PhD researcher and inventor of a patented algorithm that has produced what is believed to be the world's highest quality reconstructed image using phase-only projection.

Professor Bill Crossland, generally regarded as the founding father of LCOS technologies, is the Chair of CAPE, one of the leading inventors on the core patent and the Principal Investigator for the collaborative research project with Alps Electric.

“This may be the first mass-market application of real-time holography,” he said. “I have been working on this idea with my colleagues for over 10 years, looking forward to the day when computer processing power, lasers and liquid crystal technology would become sufficiently advanced to put our ideas into practice.”

“We were very excited when this time came and are now delighted to be working with Alps Electric with the licence to our patent in place. Alps Electric is the perfect partner for developing the technology with us and creating great products for as many people as possible around the world.”

Speaking for Alps Electric Co., Ltd., Board Director and Head of Business Development Headquarters Mr Motohiro Shimaoka said: “Our work with the University of Cambridge will put this groundbreaking

miniature projection technology into everyday use in the shortest timescale possible. The miniature projectors we will manufacture will make conventional light valve data projectors obsolete and will find applications that range from business presentation support, to automotive head up displays to mobile entertainment, anywhere at any time.”

Alps Electric’s exclusive licence has been agreed by Cambridge Enterprise, which helps University of Cambridge inventors, innovators and entrepreneurs make their ideas and concepts more commercially successful.

Source: University of Cambridge

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