

Developing small-size laser projectors for mobile phones

February 28 2012

Mobile phones currently on the market are capable of showing high quality images and video, but the phones' small size sets insurmountable limits on screen size, and thus the viewing experience. VTT Technical Research Centre of Finland, EpiCrystals Oy and the Aalto University are developing a better laser light source for projectors that will be integrated into mobile phones, which will enable accurate and efficient projection of, for example, photographs and movies on any surface. Mobile phones equipped with the laser light source can be within the ordinary consumer's reach already in a few years time.

Small-size laser projectors 1-2 centimetres in length can be integrated into many kinds of electronic appliances, such as digital or [video cameras](#), gaming devices and mobile phones. Integrated micro projectors could, in practice, project images the size of an A3 sheet of paper on a wall.

The challenge is to develop a small, energy-efficient and luminous three-colour (RGB) [light source](#), whose manufacturing costs can be kept low, for use in the projectors. Solutions for these challenges are sought in a project combining Finnish know-how, whose parties are VTT, EpiCrystals Inc. and the Aalto University.

"The project has successfully combined multi-technological know-how from VTT and its partners in the project, from manufacturing materials and the accurate focusing of laser chips all the way to production line design. The project was launched last autumn, and we are now entering

the stage where we can move from brainstorming and design to building [prototypes](#). It is our goal to prove by next summer that large quantities of the new laser light sources can be manufactured quickly and economically ", says Principal Scientist Timo Aalto from VTT.

EpiCrystals Inc. aims straight for the [global market](#) with its product, and it is the company's goal to be the technology and market leader in [laser light](#) sources for micro projectors by 2015.

"We are developing an entirely new technology that is currently not in use anywhere else in the world. At the moment, there are stand-alone projectors on the market that can be connected to electronic appliances and early stage integrated projectors, but their quality and price are not competitive enough. Large electronics manufacturers are extremely interested in integrated projectors, and market research shows that demand for these micro projectors will increase strongly in the coming years. Soon, around two billion mobile phones per year will be sold in the world, and if even a couple of per cent of those contain a projector, we are talking about tens of millions of copies, and the hundred million mark is not far either", says Vice President of Business Development Tomi Jouhti of EpiCrystals Oy.

EpiCrystals' laser modules will be mass-produced in Asia, but the research and development will remain in Finland also in the future. The VTT, EpiCrystals and Aalto University project has received funding from the Finnish Funding Agency for Technology and Innovation Tekes, among others.

Provided by VTT Technical Research Centre of Finland

Citation: Developing small-size laser projectors for mobile phones (2012, February 28) retrieved 25 April 2024 from <https://phys.org/news/2012-02-small-size-laser-projectors-mobile.html>

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