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BRAIN WAVE

Auto-tune your eyes

FOR BETTER VISION: Team Drishti (left to right) Ameya Kulkarni, Nitin Pawar, Rohit Srivastava, Ajay Suryavanshi, Bhushan Kharbikar, Anupam Bam, with the Samsung Innovation Award

Shashidhar K J | TNN

We share various things with our friends like clothes, accessories, stationery, but nobody shares their spectacles," says Ajay Suryavanshi. But what if we could share our spectacles despite having different powers is the question Ajay is trying to answer with the product Drishti: Universal Eye Glasses. Ajay is a research scholar at the Indian Institute of Technology, Bombay. He along with his team is currently developing a pair of eyeglasses with tunable lenses for correcting vision.

tect the type of error (myopia or hypermetropia) and the amount of correction needed in standard ophthalmic units of 'Diopters'. The intelligence module looks like a diver's goggles.

The second module, which looks like a pair of regular spectacles, consists of a lens system of oil-water meniscus placed in a gel chamber which in turn is fitted into a plastic case. The liquid meniscus changes its focal length based on swelling-deswelling of the gel which is changed by electric signals. This lens system will be placed in a spectacle frame equipped with microelectronics to send signals to

jury found Drishti's product extremely interesting as it provided a low cost and viable option for adjusting error in one's vision without another's interference. This is an innovation that clearly addresses the prevalent challenges around basic healthcare, making it accessible and affordable to a wider section of the Indian population," says Ruchika Batra, general manager, Samsung South West Asia. Samsung looks at possible funding and incubation opportunities for the short listed innovations.

"The main difficulty is finding an industrial contact. A lot can be done in the re-

The others are Bhushan N Kharbikar, Nitin Pawar, Anupam Bam and Ameya Kulkarni. All of them are studying bio-medical engineering, and are part of the team developing a prototype a device which can detect vision error in a person's eye and correct it without any human intervention.

The device consists of two modules, an intelligence module which has an LED light source to flash a light to image the retina, which is captured by a camera. The image of the retina is processed by digital image processing algorithms to decide the gel. The 'correction' is transferred to the micro-electronics on the spectacle which generates appropriate electrical signals for the tunable lens system to change its focal length as required.

"So, a person with a particular error, say +1 power, can share his glasses with anyone with a different error, say -2 power, just by tuning the lenses as per the second person's requirement using the intelligence module," says Ajay.

Drishti were the winners in the product design category in this year's Samsung Innovation Awards. "The search lab but translating the product into a commercially viable one is always the challenge," says professor Rohit Srivastava, Drishti's faculty advisor at IIT, Bombay. "I've got the students to start working in the lab and figure out the microelectrical-mechanical systems (MEMS). The electronics can always be outsourced," he says. The team at Drishti have applied for a provisional patent for the working design of their product. "We are now optimizing different parameters related to the intelligence module and lens system," says Ajay.

We share various things with our friends like clothes, accessories, stationery, etc. But nobody shares their spectacles with anyone. But with our product, even this would be possible. – Ajay Suryavanshi