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PRESS RELEASE
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SID DisplayWeek a great success for Mirrorcle Technologies

What a show it was!

For the first time in company history, the Mirrorcle Technologies team exhibited at the Innovation Zone (or 'I-Zone') at the Society for Information Display ('SID') DisplayWeek 2019 exhibition in San Jose in early May, showcasing its new RGB Playzer products that are capable of full color projection by combining red, green and blue light sources. Visitors were able to interact with multiple MEMS-mirror based tabletop demos enhanced by additional laser projectors that "drew" colorful vector graphics content onto the carpeted walkways of the I-Zone. At virtually all times, a crowd of interested Silicon Valley movers and shakers surrounded the Mirrorcle team, many expressing interest in evaluating MEMS devices and related hardware solutions and requesting additional information as follow-up to the show. Showcased was also the RGB Playzer featured new product, a Vector Graphics Laser Projection (VGLP) system that offers remarkably high visibility and contrast. The system is compact and has very low power consumption, benefitting from the highest efficiency of both the (vector graphics) methodology as well as the MEMS mirror-based hardware at its core. The Playzer was developed and introduced to address a variety of programmable high-contrast lighting needs in various industry applications and beyond.

Figure 1. Mirrorcle Technologies tabletop exhibit at the I-Zones of the 2019 SID DisplayWeek.

For the automotive industry, for example, the VGLP architecture meets the increasing demand for programmable lighting solutions. As automotive technologies improve, features that were once only available in luxury models are becoming more available in standard models and manufacturers are constantly on the lookout for new technologies that can be incorporated into future car designs. Technologies such as parking assist, LED lighting, and autonomous driving capabilities are becoming more common in standard models, and many car designs are converging in shape and features to achieve the best mileage and comfort for their customers.

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Innovative lighting technologies that allow owners to individualize their cars with custom branding and personalization are sought by many manufacturers. Recent developments in lighting applications enable the driver to illuminate various features on the road and to project custom “courtesy light” content around the vehicle, for example messages to greet the driver and to provide information about current road and/or weather conditions. Programmable laser projectors allow users to efficiently illuminate arbitrary locations, draw custom graphics, and display custom, individualized content. This “programmable lighting” enables a level of interaction and personalization that was previously not feasible or affordable, and may also be deployed in other use cases, including smart homes, retail or entertainment.

Key applications that drive the rising demand for programmable lighting are autonomous vehicles and robots where projection of highly visible patterns near and around the systems greatly increases the safety of humans present in the same environment. Programmable lighting with the VGLP architecture provides a simple messaging solution for areas that are not easily accessible with standard displays by projecting on existing surfaces upon which e.g. warning content can be shown.

In preparation for the SID DisplayWeek and product announcement, the Mirrorcle team tested multiple laser-based projectors in indoor and outdoor environments and compared their brightness levels and contrast under different background lighting conditions. It was quickly apparent that in bright indoor environments and practically any outside condition, only Mirrorcle’s VGLP-based projectors produced visible content. By taking advantage of high-bandwidth MEMS mirrors to deliver laser power specifically to content regions of interest, VGLP creates the brightest and highest contrast content in challenging environments, while limiting content to outline / vector type graphics instead of bitmap images and videos.

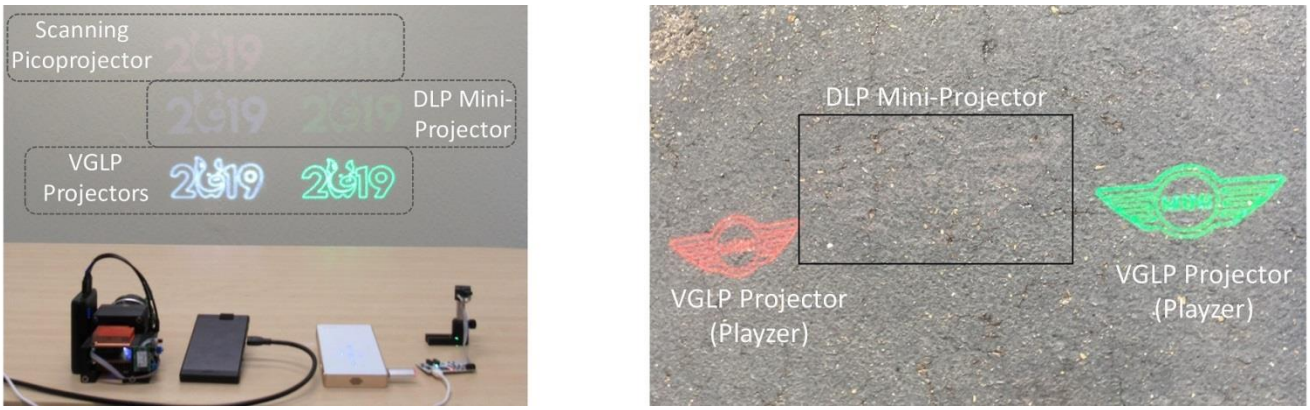

Figure 2. (Left) Indoor comparisons of VGLP-based Playzer vs. existing compact projectors at 2m distance from a wall. All three methodologies are projecting same size white content on the left and green content on the right. (Right) Outdoor comparison of VGLP projectors (one red projector and one green projector) and a DLP mini-projector. The VGLP projectors shown run at approximately 10% of the power required for DLP.

Other tabletop demos such as the DEMO-02 Laser Scan and Camera Sense Demonstrator sparked further interest from industry and academia visitors who could interact with camera vision algorithms recognizing shapes presented to the system which are then marked by user-controllable labels and tracked by the laser projector, an example use case that could enable many ‘Industry 4.0’ systems.

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About Mirrorcle Technologies, Inc.

Mirrorcle Technologies, Inc., founded in 2005, is a California corporation that commercially provides products and laser systems based on its proprietary optical microelectromechanical system (MEMS) technology. Since its founding, and supported by its continuous investment in R&D, the company has been offering the world's fastest point-to-point (quasi-static) two-axis beam-steering mirrors, as well as resonating-type micromirror devices with rates up to HD video display. Mirrorcle is globally the only provider of tip-tilt MEMS actuators in combination with mirrors from submillimeter to several mm in diameter, offering customers a wide selection of specifications to optimize their paths to successful commercialization. They can be found today in 3D metrology and biomedical imaging systems, solid-state LiDARs, AR/VR prototypes, laser projectors, and classrooms.
Mirrorcle maintains multiple cleanroom laboratories and year-round, 24-7 access to a wafer-based CMOS and MEMS fabrication facility. Beyond its facilities, the company has an established manufacturing service cooperation with leading MEMS wafer foundries and MEMS assembly houses to ensure streamlined and high-quality volume production. MEMS mirror fabrication, wafer-level and die-level testing, packaging and outgoing inspections are all performed in clean-rooms.
As a privately held company, Mirrorcle is able to act efficiently, offering creative and highly responsive service to customers and provides highest-quality products and support to facilitate customers’ product development and successful commercialization. The team draws on several decades of combined experience in MEMS design, fabrication, and testing.

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