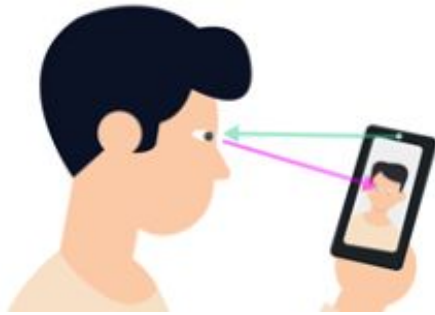


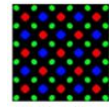
# All-in-One Display and Camera Technology



Due to camera holes  
Immersive distraction



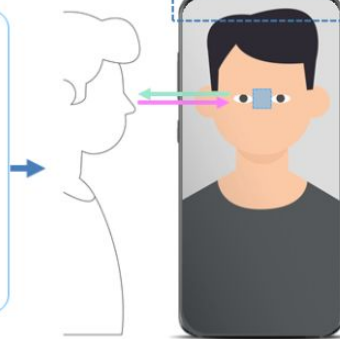
Due to the biased camera position  
gaze mismatch



Display



Camera



Bezelless design without camera holes, and  
fused lensless camera in the center of the display

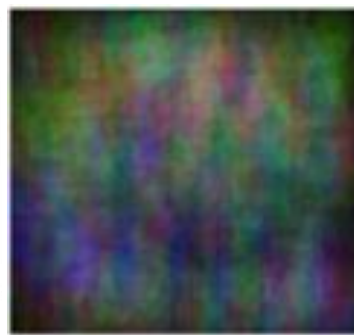
It is a Camera Integrated Display Technology. Fundamentally, this solution supports bezel less display design. In the teleconference, this solution supports an experience that the remote user's eyes and the viewer's eyes match. When user take a selfie, it provides a mirror effect. OLED Display Market value is expected \$121 billion. After 1 year, my team will sale patent license to SAMSUNG Electronics and SAMSUNG Display. In near future, my team will make product and device sale to the \$121 billion values market. (Contact: [ryuseun@gmail.com](mailto:ryuseun@gmail.com), Video: <https://youtu.be/-coCBRwK7zA>)



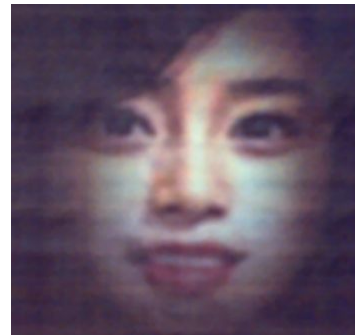
Patterned Mask  
(Patterned Metal layer)



Image Sensor



Sensor Capture image



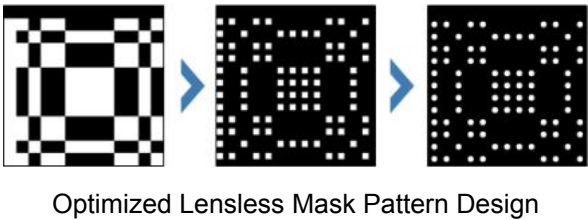
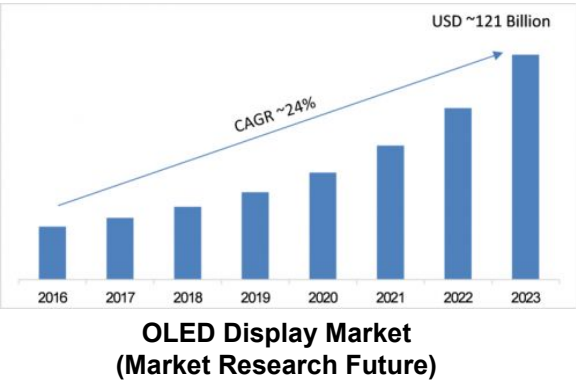
Pre-Alpha Quality  
Image Processing



Beta Quality

After 1 year, Beta Version  
license Sales to SAMSUNG Display

Version (period)	Target Goal or Product	Development staff / Required Manpower and Budget	Sales target company / Product
Pre-Alpha (13 Months) (2018.7~2019.7)	Display Integrated Lensless Camera Possibility Verification - Lensless Camera Methodology and Knowhow acquisition - Optimized Lensless Mask Design Complete	UX: camera position and camera interaction SW: Camera Image Processing HW 1, 2: Camera and Display Circuit Control	SAMSUNG Electronics And SAMSUNG Display
Alpha (6 Months)	OLED Display Mask Based Lensless Camera - C model and FPGA Design/Verification/Tuning - Goal: <b>Image Quality PSNR 15(dB), SSIM 0.7</b>	UX 1: AF, FOV Interaction Design SW 1,2,3: Focus and FOV control, C Modeling, Camera Quality Tuning, C Modeling HW 1,2,3: FPGA Design, Verification <b>Budget \$1 million</b>	SAMSUNG Electronics and SAMSUNG Display required more high quality result (beta version) and noticed an intention to actively purchase of beta version level. <b>Expected Royalty Price: \$10 million</b>
Beta (6 Months)	- Goal: <b>Image Quality PSNR 24(dB), SSIM 0.9</b> - <b>Technology license Sales to SAMSUNG Display</b>		
Future	Self-production 'Camera Integrated OLED Display' by using Inkjet Printing Method		SAMSUNG Electronics, APPLE, SONY, etc <b>2023 Expected Market Value: \$121 billion</b>



Team Leader "Seun Ryu"  
It is a Camera Integrated Display Technology.  
Fundamentally, this solution supports bezel less display design.  
In the teleconference, this solution supports an experience that the remote user's eyes and the viewer's eyes match.  
When user take a selfie, it provides a mirror effect.

OLED Display Market value is expected \$121 billion.  
After 1 year, my team will sale patent license to SAMSUNG Electronics and SAMSUNG Display. In near future, my team will make product and device sale to the \$121 billion values market.