

Report on MERIT internship

GSFS, School of material science

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Internship at RICOH Co., Ltd.

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1. Abstract of the internship

This internship was supported by Graduate Program for Mechanical systems Innovation (GMSI, department of technology). I worked on the internship at RICOH Co., Ltd. in Ebina city for 5 weeks. Research theme of this internship was development of the smartglasses, a glasses-type wearable computer.

2. Research

Head-mounted display devices have been in widespread use in recent years, for example, HoloLens of Microsoft. The glasses-type device that outputs an image to the part equivalent to the lens is especially called as smartglasses, and it is expected to be used in particular in the industrial field because the wearer can see both of the external view and displayed images with keeping both hands free. Ricoh Co., Ltd. is developing glasses-type devices that differentiate itself from existing products, in particular by enhancing its lightness and casual appearance. In this internship, I was in charge of optimization of the system to output images.

3. Report on the internship

My research topic in the university is spintronics, which focuses on the fundamental transport properties in magnetic materials. Though the theme for this internship was very far from my academic interest, I applied to this internship because I was interested in the research for commercial products. I worked on optimization of the layout of optical systems to output digital images with using CAD and 3D printers. This was first time for me to use 3D printer and I understood how this is strong equipment to fabricate prototype products. It was impressive that all members in the development team shared the overview of the whole device and understood what the outstanding feature would be of the product. Though there were unexpected change in specifications for several times, they could respond to those requirements with quick decisions. I also had a chance to visit Gotenba office of RICOH, which is

established for achievement of environmentally friendly management.

4. Acknowledgement

I would like to thank the staff of RICOH Co., Ltd. who kindly accepted and supported this 5-weeks internship. They provided a very comfortable environment during the stay in Ebina. Especially I appreciate the kindness of Hirano-san, who helped planning for and performing experiments on the internship. I would also like to thank Prof. Otani, Prof. Nishihara, the MERIT program and the GMSI program for providing this great experience.