

Improvement of e-Learning Contents Creation Using Augmented Reality

Hitomi Sugahara¹, Akinori Toguchi¹, Hitoshi Sasaki¹, Arimitsu Shikoda², and
Kazunori Mizuno¹

1 Faculty of Engineering, Takushoku University, Japan

2 Faculty of Engineering, Tohoku Gakuin University, Japan

r98445@st.takushoku-u.ac.jp; toguchi@eitl.cs.takushoku-u.ac.jp

In the engineering education field, the student experiment courses are important opportunity for students to improve their skills gradually through practical work. In such courses, students are required complex work with real tools. Therefore, we have proposed new e-Learning content for support to learn how to operate experiment equipment by using Augmented Reality (AR) technology. Teachers will be able to create e-Learning content that can superimpose instruction to actual equipment directly by using AR. Moreover, we received certain reputation that there are helpful to learn how to operate experiments equipment by evaluation experiment. However, these contents are written by over thousand steps ActionScript3. In such condition, it is difficult that teacher creates new content by oneself who does not have programming knowledge. Because of this, we require the method of creating contents more easily.

Therefore, we implemented function that content can be created by writing in XML. Our content requires some information of superimposed object such as position to superimpose, path to object data and object size in actual-world environment. In our previous content, these were defined in program code. We changed to method to write such information in XML. First, our content reads the XML-based document that is written information about superimposed objects at runtime, and then interprets it, based on rules. Finally, content displays synchronized the movie of actual equipment and objects defined in XML. Because of this, teacher will be able to create new contents by only write some simple elements about information of superimposed objects without programming and compilation. Incidentally, teacher can specify in the types of superimposed object that are image, sound and video.

In addition to above, we require future developing support tools of easy-to-use authoring. We think that our e-Learning contents will be able to use in real classes more easily by our improvement.

Keyword: e-Learning content, Augmented Reality, Contents creation support