CRITIQUE- 4

DisplayObjects : Prototyping Functional Physical Interfaces on 3D Styrofoam, Paper or Cardboard Models

INTRODUCTION

The main problem that is being solved is, the physical prototypes are the most important and only way to examine the look and feel of the interface at the initial stages.If these prototypes are passive, the users do not experience the haptics and visual perceptions which might destroy the whole purpose of having physical prototypes.The research paper presents a workbench which helps in creating physical prototypes using DisplayObjects, with functional content at the early stage of physical design.A Vicon motion capture device senses different attributes of the DisplayObject and the model projected on it, which are kept in sync with the user interactions.The different interaction techniques a user can perform with the displayObjects such as pointing,drag and drop,pinch,clicking,wiping etc making it a more interactive prototype. The paper lists out various user experiences with displayObjects were the users describe the technique supports a rapid interactive design cycle, easy to use, didn't require sourcing of materials, but was not portable.The paper also discusses future work of using OLED thin-film displays and wireless accelerators would make the system light-weight and use of HD multiple projector to solve issues of scanning the model and occlusion.

WHAT I LIKED

I liked the background section which states the main motivation of coming up with the concept of DisplayObjects describing various existing problems of having passive physical prototypes.The existing problems, such as, not having rapid prototyping, the lack of visual and haptic interactions, use of readily available materials for building the prototype, having curved or thin-film display elements, are clearly mapped to the problems solved by the proposed DisplayObjects workbench.

The research paper also discusses interesting case-studies.The pop can, credit card design case studies and the feedback received from the student interviews gave a clear picture of the applications of displayObject concept.The paper states that the prototypes were built in 1-4 hours by students with little experience in hardware prototyping and these prototypes responded to one-handed, multi-finger dragging, pointing and clicking gestures which I think suggests that the workbench presented appears to be an appropriate technique in the early stages of design process.

WHAT I DID NOT LIKE

The interaction techniques just describe the actions like, tapping, dragging, wiping, pinch/release etc, that can be performed but do not describe about the response time or performance of these actions.A section including the analysis of the sync between the user, model and the displayObject would have helped understand these interactions better.
The paper also only uses flat displayObjects as examples and do not discuss about how the curved displays would work as displayObjects.
The paper states that their workbench helps in re-using the cheap readily available materials to build the prototype.The discussion section mentions that the inclusion of the HD projector and the upgrade to 4 MPixel cameras would resolve the issues of resolution but might make the whole setup more expensive and not portable.

QUESTIONS

Would there be any delay while performing actions such as tapping,dragging,wiping and other interaction techniques discussed in the paper?
Will the workbench setup proposed by the paper be cheaper in all cases than the paper prototyping technique?

CONCLUSIONS

The paper proposed the idea of having interactive prototypes in the initial stages of the design phase. The idea presented has a novice design and supports rapid prototyping, interactive user experience but the drawbacks are the whole workbench setup is not portable and might be difficult to build the software models through scanners.The paper had many new learning points for me such as the vicon motion capture system, early prototyping, OLED skins, organic user interfaces etc.