Visualization Prototype Summary

Team 6

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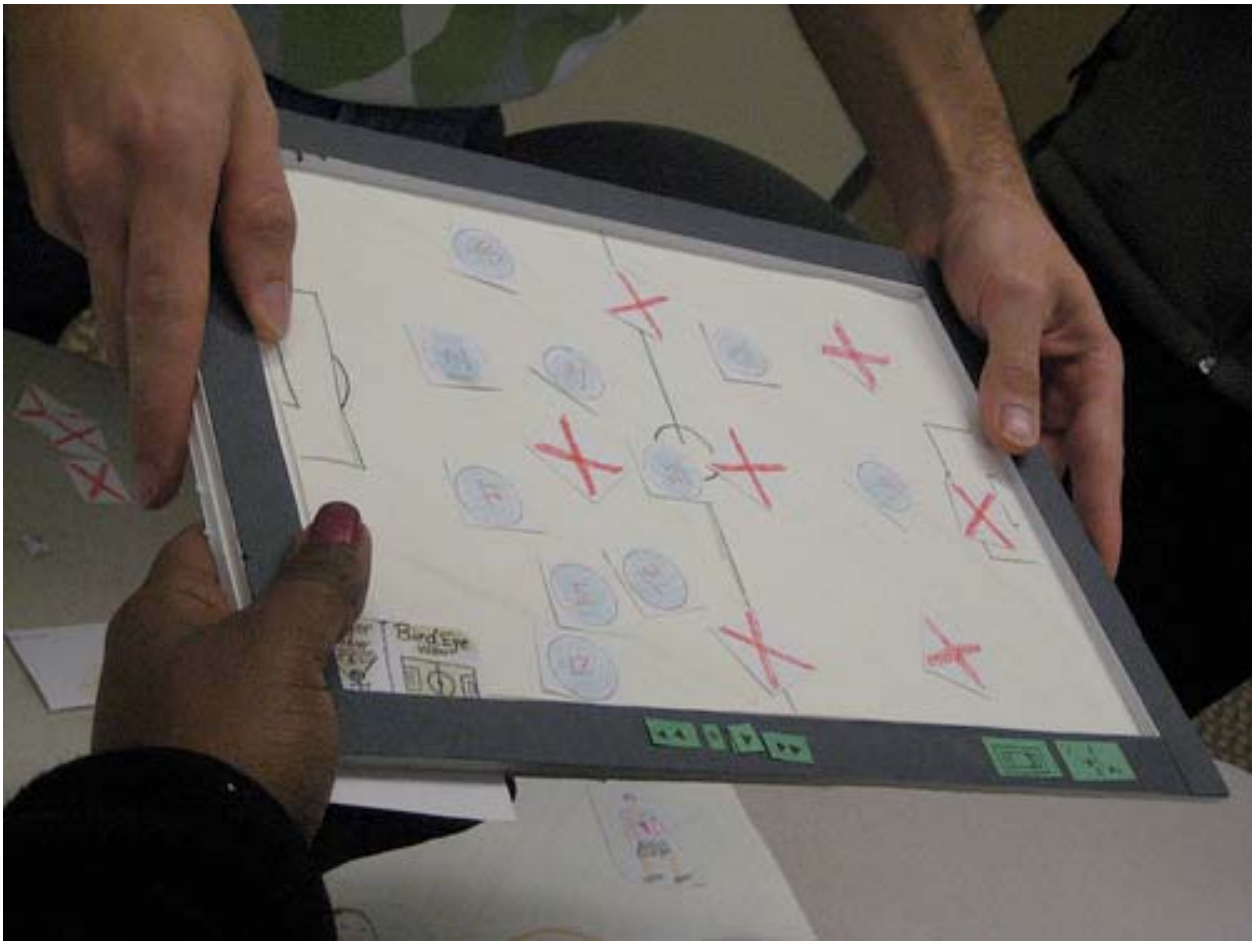
Assigned Team's Prototype

Materiality

Nina, Ammar, and Thomas designed an interactive touch screen coaching tool for soccer coaches. They said it was designed to be used in practice to review plays, see the bird's eye view of the players, and to view game tape. Another aspect of the prototype was the ability to create plays. We thought that the materials used were appropriate because the design is a touch screen. The materials used in the prototype included foam core, vellum, paper, post its, index cards, and colored pencils. Their use of foam core, with pieces of paper attached, encouraged touching the screen. It created the affordance that the pieces were moveable.



assigned team's prototype

The use of a raised foam core 'frame' created boundaries that illustrated that this was a screen. The weight of the foam core gave the prototype a handling ability. The weight of the paper (which represented the players) was light enough to be moveable yet heavy enough to give it substance. We

found that cutting out individual players was innovative because we could interact with it as someone would in situ. This was better than simply drawing everything out on a single sheet of paper, which would have decreased the interactivity.

Construction

While we enjoyed the heavy construction, we found the prototype difficult to interact with. This was due to the fact that in order to facilitate the wizard of oz method, one member of the design team had to hold the prototype together at all times. This was because in order to change the screens, the top part of the prototype had to be taken off at different times. This gave the prototype a fragile feel. Another element of concern was the fact that we could not handle the "clip board" as a clip board due to the paper elements, which would slide off if you did not hold it in a horizontal position. This inhibited us from interacting with the design as we would a real clip board, which lessened the experience.

Functionality

The points of interaction for the device were clearly noted. However, it was unclear what each item enabled the user to accomplish. We were also unclear as to how the interactions would affect the players on the field. During the usability test, we began to feel lost in the design and inept in the manipulation of it. This had a lot to do with how the facilitator began to dominate the usability test as it progressed. This led to a detachment from the design as well as a feeling of making mistakes.

Areas for Improvment

One way we feel the prototype could be improved is by sturdier construction. Creating a stronger structure would enable the user to have more control of the prototype. Also, if the players were somehow attached to the board yet still moveable this could enhance the experience. By implementing these construction techniques the user could hold the prototype in their hand, independent of the facilitator. This would eliminate the feeling of ineptitude and ease the interaction of the facilitator, keeping them from directly interacting with the prototype.

Our Prototype

our prototype in use

About the Prototype

Our prototype was a touch screen interface, and our user interacted with it accordingly. The user held the prototype like a clipboard. One of the issues we encountered was with our use of push pins. Rather than touch and slide, our user wanted to pick up and move. This was an affordance provided by the push pins that did not match how the proposed touch screen interface would function. We also found that when the user was selecting a player or adding and removing shadow, they wanted to touch the screen rather then interact with the menu located at the top of the clipboard.

Our user understood how the overall system worked, but there were certain aspects that caused confusion. One was the adding and removing shadows to the different players. While our user was able to do this, the actual task flow was confusing. The user also had issues with our live view. At first she did not understand it corresponded to the highlighted player, but realized this through use.

As mentioned above, the physicality of the push pins caused the user interaction issues. Another piece that didn't work well was the zoom in and out function. Although we had plus and minus buttons placed on the screen, the user wanted to use a pinch and pull gesture. We had not incorporated gestural input. The user commented on the small size of the screen, and wanted a full screen option. We talked about this feature, but did not implement it into the prototype.

building our prototype

Rewarding Aspects

In order to begin the design we came up with the “rapid idea formation session”. During this time we vocalized our ideas, and gave rationales to back them up. It was from these rationales we got to appreciate the diversity of our backgrounds. It was clear that everyone was utilizing their past experiences to inform their design ideas. This diversity of ideas made our concept richer. The most rewarding thing about the “Wizard of Oz” technique was seeing the way the user learned our prototype. Based on the screens we made, the user was able to move her way through, and that was exciting to see. Also, our helmet added clarity to the idea of the shadow players. By making the idea visible, the user could understand how their action affected the player.

Challenging Aspects

The extremely short design period we had for this project presented a particular challenge. The fact that we had to develop the idea and then in less than an hour and a half construct a usable, testable prototype was a much more rapid development schedule than we’d ever used before. Since we didn’t have a great deal of time to consider the possible prototyping materials we’d have to use, we were forced to make quick decisions and improvise with the available tools we had.

In this case, this worked out well for us; the helmet, while rapidly improvised, turned out well, and the clipboard with it's push pin icons was also highly usable. During the actual usability testing we encountered issues with users not realizing that the push pins were representing a flat touch-screen, and they were unsure of exactly how to interact with the push pins. While the design lent itself to the Wizard-Of-Oz method, it wasn't ideal for testing of the actual design. This is an important lesson to have learned during this assignment, and is probably the most challenging aspect of the Wizard-of-Oz method; the fact that we must create a prototype that is both suitable for rapid, slight-of-hand changes and also a fair representation of the final product is a highly complex challenge.

building our prototype

Insights Generation and Failure

The "Wizard of Oz" method generated many insights regarding our prototype. For example, we discovered how confusing our shadow player concept could be. When the user added a shadow player, she mentioned she hadn't told the shadow player where to go, or what position to be in. This could be an issue in a real product. It helped us to see how deep and detailed a feature like this would need to be. This method also helped us to consider new features of our product. Our user asked us specifically if there was a way to remove either the defensive or the offensive players from the screen. This was an

idea we hadn't discussed, and all the players were visible in our prototype. The user also wanted to be able to move the players around the screen by touching them and moving them. Because we had all of the command attached to the menu bar at the top of the screen, this was an idea we hadn't explored.

Although the "Wizard of Oz" method did provide many insights, there are some it fails to provide. One is enjoyability. We were unable to tell whether our design would be fun to interact with because the user could not operate it fluidly. Another insight that this method failed to produce was in regards to practicality. We envisioned a coach using this in practice in order to teach the players in regards to a particular play. Is our system easy enough to set up so that the coach could change the options easily? Is it something he would have to set up before practice? We would also be concerned with the cost of implementation. With all of the augmented reality aspects we have incorporated, would this product be too expensive to build?

Redesign

In talking about the redesign of our clipboard our team decided to tackle several items, many of which came to light during our user testing. The first is that users wanted to be able to make the live video feed of a particular player bigger or 'full screen'. In our redesign we imagine that users would want to drag the live video feed down into the 'main' or larger screen section to make the live video 'full screen'. Secondly, we wanted a more friendly and intuitive way of zooming in and out of the large screen. We image this zooming interaction to be much like the iPhone and several other touch interfaces coming out where a user would 'pinch' the screen to zoom out and would 'pull' the screen in order to zoom in. This would especially be useful in the 'full screen' video mode mentioned above. However when the live video feed is much smaller, 'normal', the pinching and pulling might not be as easy since the video feed isn't very big, so we would like to keep the current 'plus' and 'minus' buttons for zooming, especially since our users were easily able to figure out these functions. Next, our user tests helped us to understand a need for possibly removing a player or more likely an entire 'set' of players (the offense or defense). We imagined a new button on the top menu section that would allow for hiding of the offensive or defensive teams. This buttons would likely be placed in the tabs for the opposite teams, i.e. the offensive tab would have a button to hide the defensive players. Lastly, we imagined that instead of a row of buttons on the top menu section for player functions that a contextual menu would pop up when a particular player was selected. This menu would have options for adding or removing shadows to a player's visor, selecting that players live video feed, and other pertinent information. We hope that with this redesign our interactive coach's clipboard would be more intuitive for coaches and provide a better and more robust experience.