

College for Creative Studies
GRAPHIC DESIGN PRACTICUM : DGD 399 / DGD 400

PROTOTYPE DESIGN

Bayer MaterialScience

PROFESSOR: **Alex Braidwood**

STUDENTS: **Brandon Bayer** **Jenny Shaddach** **Sam Kojiro**
Marcus Mullins **James Hovell** **Jake Zucker**

RESEARCH



OEM DESIGNER INTERVIEW

Colin Phipps

"The pie doesn't get any bigger, the slices just get smaller. So everyone needs to be a little bit more creative."

"A lot of new products come from unseen opportunities. Right now we're looking at new up and coming markets like the Philippines."

"Before we even put pen to paper we ask ourselves does this make sense? Because we don't even know what the car is going to be yet."

"Materials limit what you can and can't do, you can only do so much with steel and metal."

"You can kind of do whatever you want in a plastic part but plastic to the customer sends a different kind of message, typically in a car the things you come in contact with are metal because they imply strength, because there are

different implications behind different materials, plastic tends to give a customer a false impression in most cases because it stays a moderate temperature, it doesn't really do anything or sometimes it can warp. Metal gets cold in the winter, hot in the summer, and that could be the type of thing that adds excitement and an emotional response."

"They could come to us with a new technology or material that we've never used before — before we even start the design process and we would be so excited about its capabilities that we would think to ourselves that this is so great, we could do so much with it."

"Plastic is maybe deemed a lesser material than metal but in the luxury car market beyond metal and wood, stone and jewels are deemed very high end things to have."

"Sometimes you have to work more emotionally and intuitively and not design only based on market research data. Back in the 40's and 50's, that's how car design was done. There was no research to guide design."

"In the end, the cheaper car can succeed because people think with their pocketbooks."

"What car designers like most about fashion is not the clothes but the seasonal turnover time and the amount of interval change between one season and the next."



OEM DESIGNER INTERVIEW

François Farion

"Changes to the design of vehicles need to be addressed, or brought forth in the beginning because the process of designing a vehicle can take 2-3 years. Usually all aspects of the design are determined in the initial design phase."

"Be inspired by anything. You never know when you will come across something that will speak to one of your projects."

"Setting a precedence within the car design business makes others willing to use the material or feature. By innovating and using something for the first time is difficult for many companies to commit to, once someone does make the change others will follow."

"Taking outside inspiration and finding a way to appropriately apply them to cars. glow in the dark thing, how can that be applied?"

"Strong marketing support, strong enthusiastic design team. Powerful enthusiasm, people responded to that passion and believe"

"The automotive sector's process of pushing iterations through to the next step is rigorous. A fabric isn't just a fabric, it might not pass customer testing or other hurdles. There are many diluting steps."

"A supplier tried to sell General Motors a synthetic polyurethane leather. The people at GM told him his material is more expensive than vinyl, and it is not leather. He came back when GM was making the Volt. He approached them in a different way, by telling them the material is 75% lighter than leather. Since the car is ground-breaking, people buying the car are accepting new ideas."

"Now is a good time for ground breaking ideas, because people are destabilized."

"People have the presumption that a thicker seat is more comfortable. Even though the thinner, lighter seat is a better choice, the companies will not choose that direction."

"Not until recently did the decision makers care about sustainability. Since these companies are now making electric cars, they are marketing products towards people who are fully aware of environmental issues."

VISUAL RESEARCH

Preliminary visual research was done based on the initial project presentation from BMS. Relevant photos, magazine clippings, web articles, and material samples were gathered to familiarize the group with the target audience. After conducting interviews with OEM designers, images more specifically relating to the needs and wants of OEM designers were collected. These visuals related more to what specifically inspired and sparked discussion among designers. Once the visual research had soaked in, it was narrowed down to a much smaller set of images that was used specifically to inform the groups design decisions. This refined set was comprised of colors, forms, and ways to visualize the ideas of collaboration and putting a face to BMS.



CONCLUSIONS

from Research & Interviews

- + Bayer needs a meaningful approach to engage OEM designers.
- + Bayer must capitalize on the opportunities to showcase their materials by being aware of the details.
- + Bayer needs to present themselves as collaborators within the design process to develop innovative solutions and propel the company forward.
- + Current conditions within the industry have created unique opportunities for Bayer to become part of an effective and innovative design process.

TYPOGRAPHY

The Apex New type family was chosen based on it's geometric, yet friendly aesthetic. Much of the visual research that contained typography had similar characteristics as Apex New. The family consists of seven weights which make the family versatile.

Apex New - Book 18pt

abcdefghijklmnopqrstuvwxyz 1234567890
ABCDEFGHIJKLMNOPQRSTUVWXYZ 1234567890

Apex New - Book Italic 18pt

abcdefghijklmnopqrstuvwxyz 1234567890
ABCDEFGHIJKLMNOPQRSTUVWXYZ 1234567890

Apex New - Medium 18pt

abcdefghijklmnopqrstuvwxyz 1234567890
ABCDEFGHIJKLMNOPQRSTUVWXYZ 1234567890

Apex New - Medium Italic 18pt

abcdefghijklmnopqrstuvwxyz 1234567890
ABCDEFGHIJKLMNOPQRSTUVWXYZ 1234567890

Apex New - Bold 18pt

abcdefghijklmnopqrstuvwxyz 1234567890
ABCDEFGHIJKLMNOPQRSTUVWXYZ 1234567890

Apex New - Bold Italic 18pt

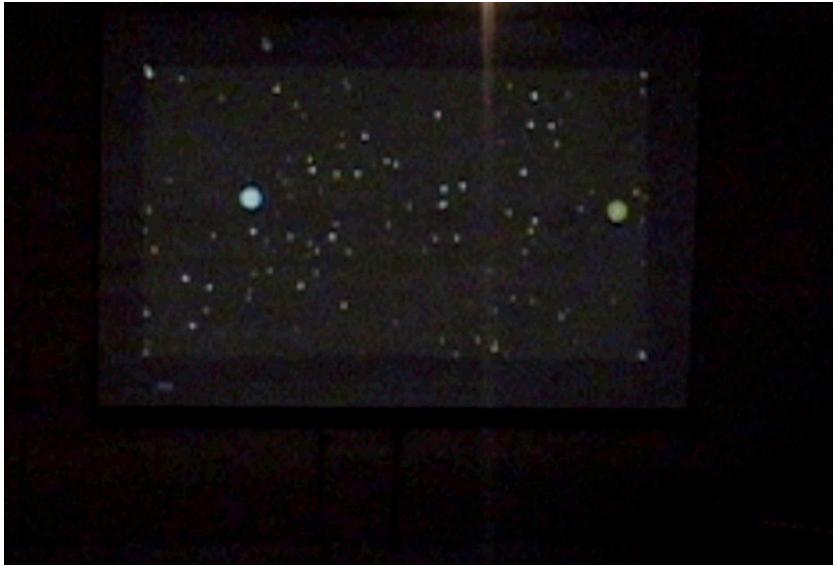
abcdefghijklmnopqrstuvwxyz 1234567890
ABCDEFGHIJKLMNOPQRSTUVWXYZ 1234567890



COLORS

The color palette began with the existing Bayer MaterialScience colors. Then, colors that appeared within the visual research and also paired well with the Bayer MaterialScience colors were integrated. To imbue the palette with a humanistic element and balance out the tonal range, a series of earth-tones were added to create the final palette used.

PHYSICAL PROTOTYPES



INTERACTIVE WALL

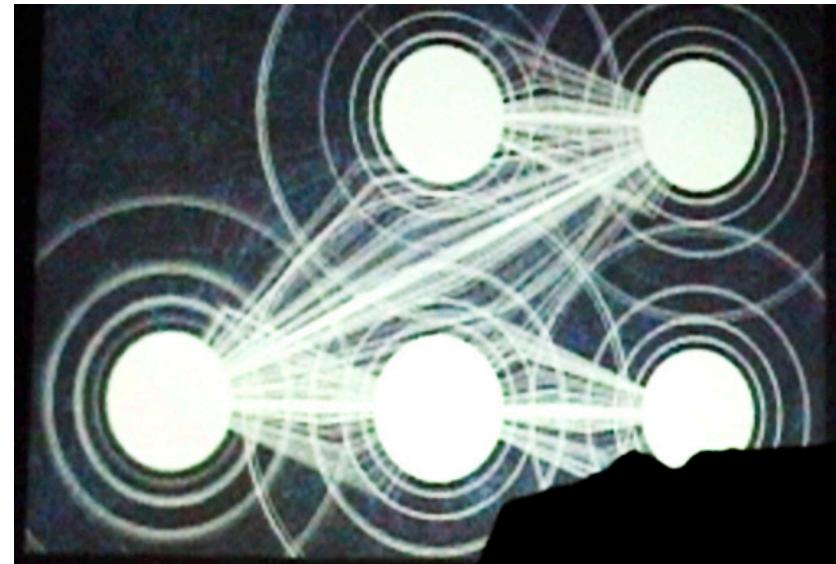
Project Statement

This interactive installation serves to reach and reinforce Bayer MaterialScience's goal of collaborating with designers by providing an engaging environment for people to play, interact and collaborate with each other and technology. Polycarbonates characteristics of light and optics are conveyed through the use of projection. The structure and construction properties of polyurethanes are portrayed through the visual aesthetic of lines that are drawn between the circles as well as the combining, and stealing of circles through user interaction which allow the user to "build" their own unique structures. This conceptual relationship of abstract forms and interactions provide an engaging way of teaching people about Bayer's technologies and there individual properties. This installation not only serves to make an immediate

impact on the user who interacts with it, but through capturing video of user interaction, can serve as a viral video which has a long afterlife and a much larger audience than at the original event. Once a video is made of the interactions, it can be distributed by the company, posted on websites like YouTube and Vimeo and then circulated through word of mouth by designers who see it and tell others about it. This type of approach will help bridge the gap between designer and engineer by representing Bayer in a way that designers can understand, relate to and be excited by.

Technology used for prototype development

Input: Video camera
Software: Processing



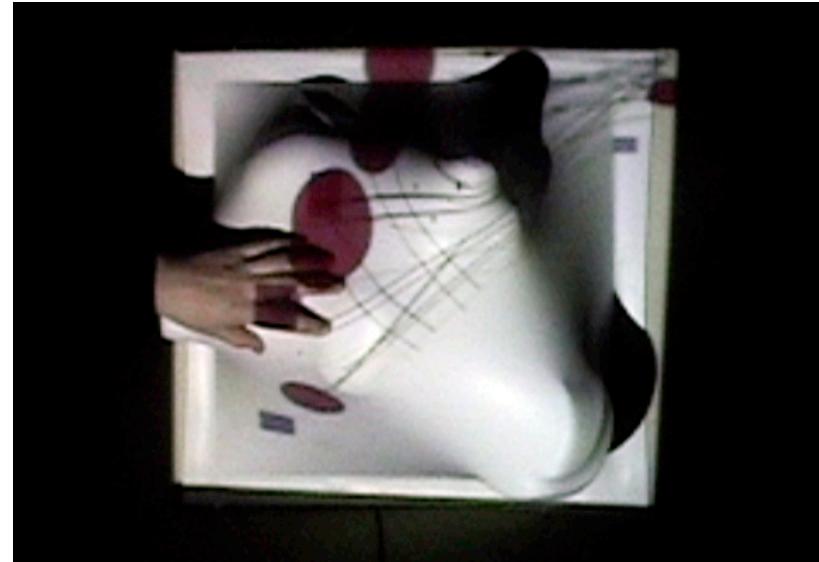
REACTIVE FLOOR

Project Statement

Extracting from the essence of collaboration and the relationships formed from such cooperation, the Reactive Floor intends to engage users in a simple collaborative interaction. This will generate an experience that allows for the user to participate and build with others. The floor will grow and form around its participants, making connections between users that otherwise might not have been made. This extends the idea of multiple parts in a whole metaphorically to the users experience, reinforcing idea of collaboration.

Technology used for prototype development

Input: Arduino microcontroller, 0-1lbs pressure sensors
Software: Processing



HAPTIC RESPONSE DISPLAY

Project Statement

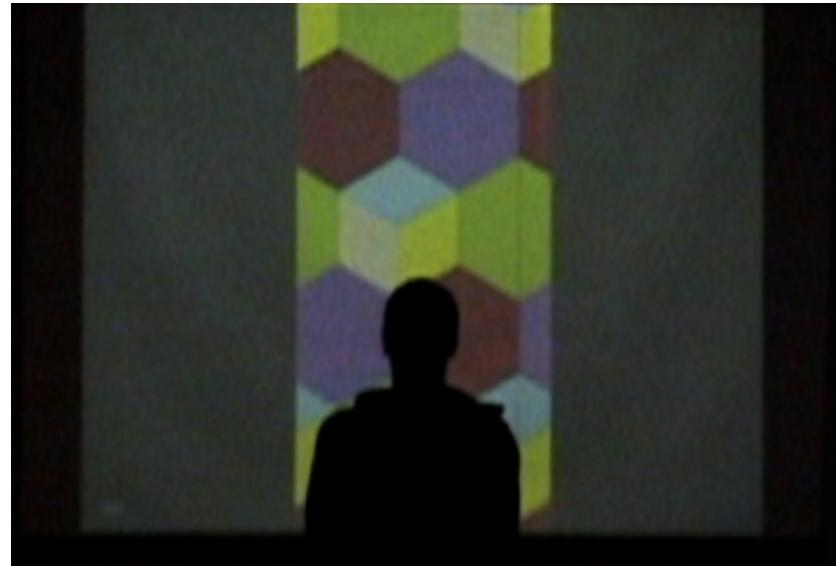
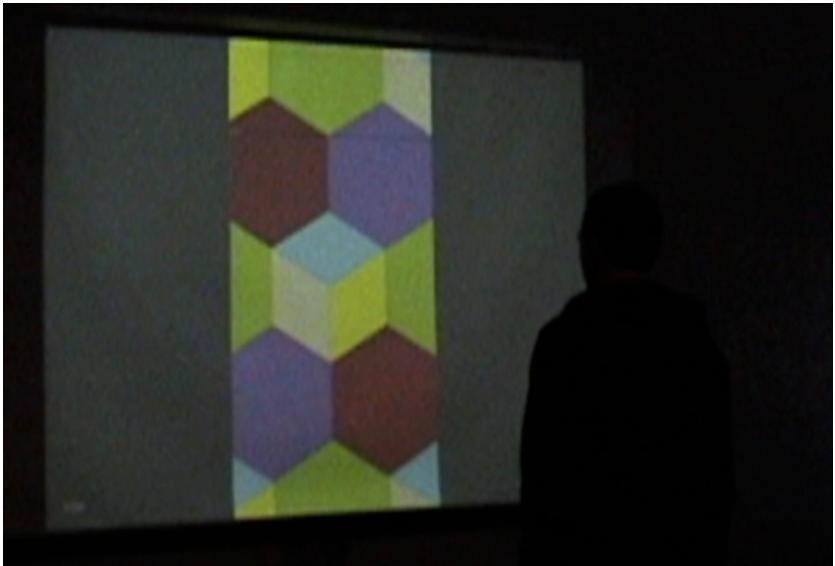
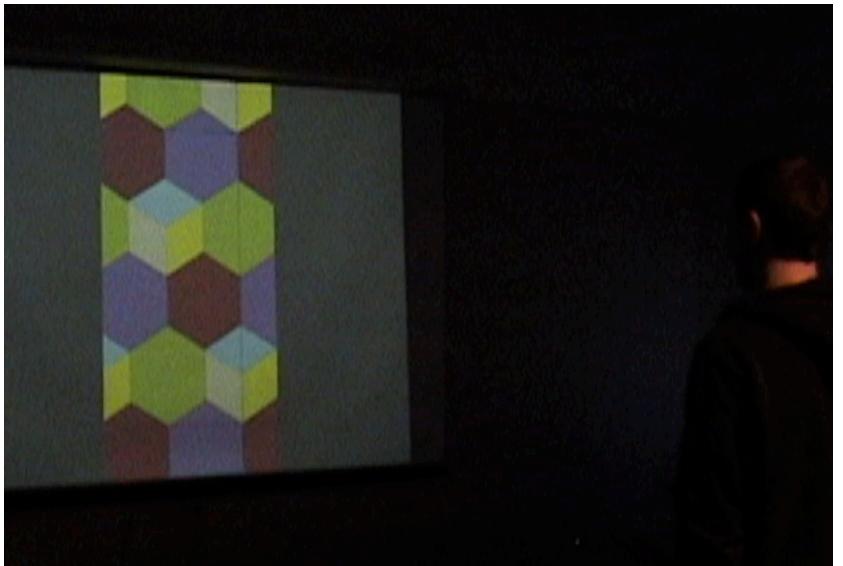
The Haptic Response Display is designed to put the viewer in a position in which they are actively interacting with a BMS adhesive or coating. The forms that each panel of the wall take is intended to be connotative of the material that they are coated in. Softer, more flexible coatings or adhesives would be applied to a panel comprised of more spherical forms. A rougher, more resilient texture would be applied to a panel that was made mostly of shapes with harder edges. The forms could also be made of materials that have a varying degree of stiffness. Some could depress and form new contours from the force of the users hand while others could remain rigid, successfully showing the range and functionality of different Bayer materials.

By creating a surface that responds to and invokes the user's touch, the viewer quickly become familiar with a variety of adhesives and coatings. Each panel of the wall acts as a much more powerful and meaningful sample. By doing this, Bayer MaterialScience becomes more than a company providing chemicals to OEM manufacturers. Creating a well designed haptic sample system elevates the image of BMS in an OEM designer's mind. The Haptic Response Display Wall creates a memorable, humanistic experience with Bayer.

Technology used for prototype development

Input: Video camera

Software: Processing



PROXIMITY SCALING

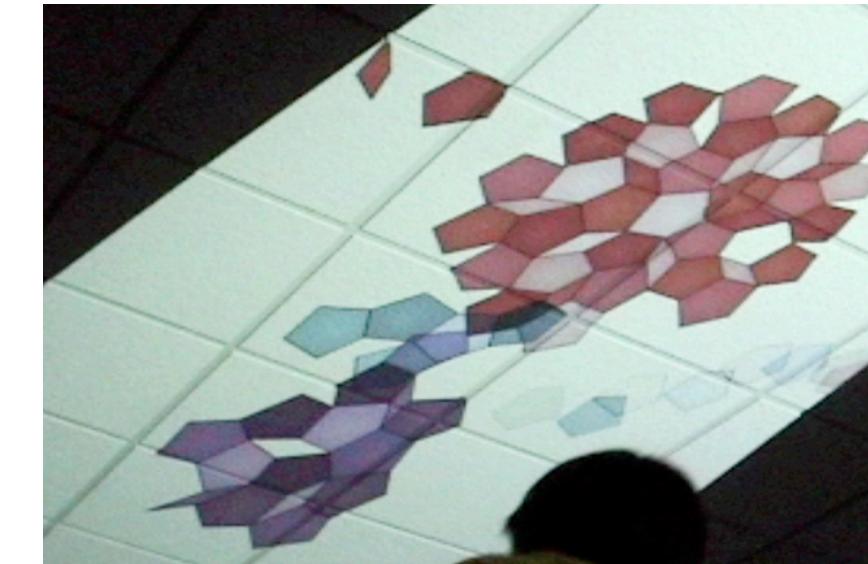
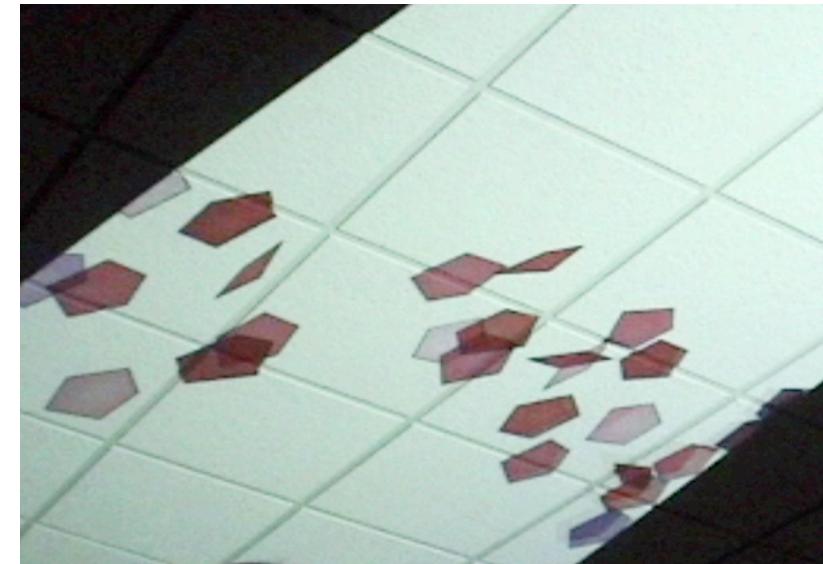
Project Statement

The interactive installation is based on the structure of polyurethane and the concept of building. The complete tessellation pattern, seen from afar, is representative of the larger whole. As the user begins to move closer to the screen, they move into the pattern, exposing the smaller pieces that form the larger whole. One of the over-arching goals is to change the perception of plastics and their possible applications. The intent of the piece is to allow the user to move closer to obtain a different view, ultimately to change that user's immediate perception. The scaling is representational of the transitional state of the materials that Bayer creates. Manufacturers use Bayer's products to make large objects that are fabricated from the smallest particles and powders.

The installation's concepts can be integrated into different spaces, making it quite versatile. The interactive projection could be installed inside the Bayer Material-Science building, which would be customized to fit the needs at hand. For other events, trade-shows, or exhibitions, the installation could be implemented and customized to fit the communication needs of the specific environment.

Technology used for prototype development

Input: Arduino microcontroller, 0-20ft proximity sensors
Software: Processing



INTERACTIVE RUNWAY

Project Statement

In order to become an integral part in the process of OEM designers, Bayer needs to approach them in an unconventional way. After conversations with designers, we have found that they do not look to the automotive industry for inspiration because the long turnaround time for a car would cause them to have an outdated end product if you did. Instead, designers look at things like the fashion industry. The quick turnaround time and varying styles of fashion provide the perfect platform to draw inspiration from. We have concluded that integrating within a fashion show to generate excitement in OEM designers for Bayer's products is a logical and compelling path to take.

Different avenues can be explored to create a memorable fashion show related to Bayer. One way is through collaboration between Bayer and fashion design students.

Using traditional fashion materials alongside Bayer materials would be a very interesting way to showcase traditional and extreme uses of Bayer products.

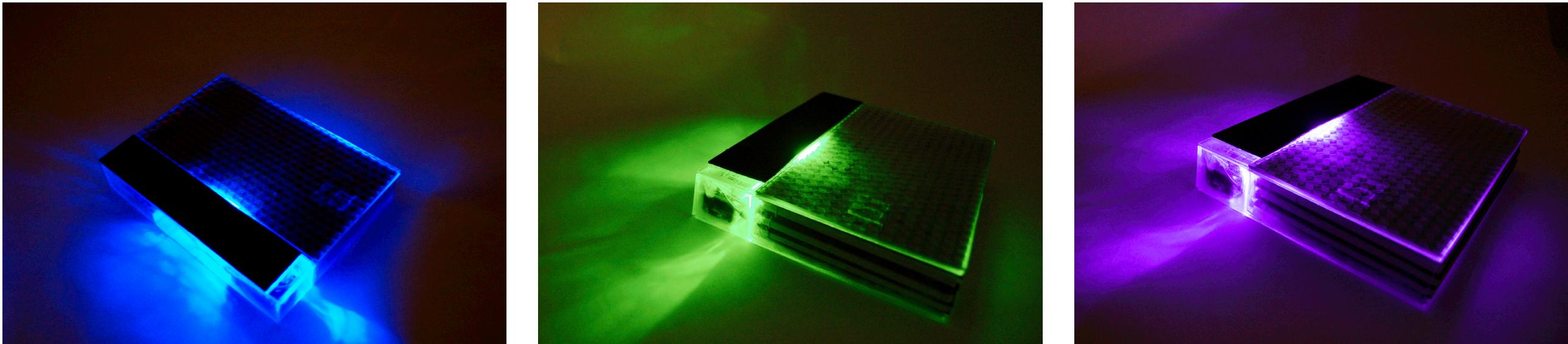
An interactive element would not only hold the interest of the audience but also make it something that they want to tell their colleagues about. The prototype runway that was created demonstrates one way that a fashion show can achieve an engaging level of interactivity. Creating a runway that, when stepped on, uses pressure sensors to cause different shapes to form in a projection above the model transforms the fashion show into a unique experience. After the show, members of the audience would be welcome to join in on the runway to create and interact with the forms themselves.

Connection to Bayer MaterialScience:

The individual shapes demonstrate the different particles that come together to make the whole. These particles create a structure that can be organic, geometric or free flowing in order to reflect the characteristics of polyurethane structures. The shapes in this prototype display the free-flowing quality in the way that they sway and move while still demonstrating geometric characteristics through the structure of the individual parts. Polycarbonate glazing is referenced through the transparent quality of the forms which evaporate once all of the forms have come together conveying the same function as Bayer's water-based coatings.

Technology used for prototype development

Input: Arduino microcontroller, 0-100lbs pressure sensors
Software: Adobe Flash



BUILDING COLLABORATIONS: A PROCESS BOOK

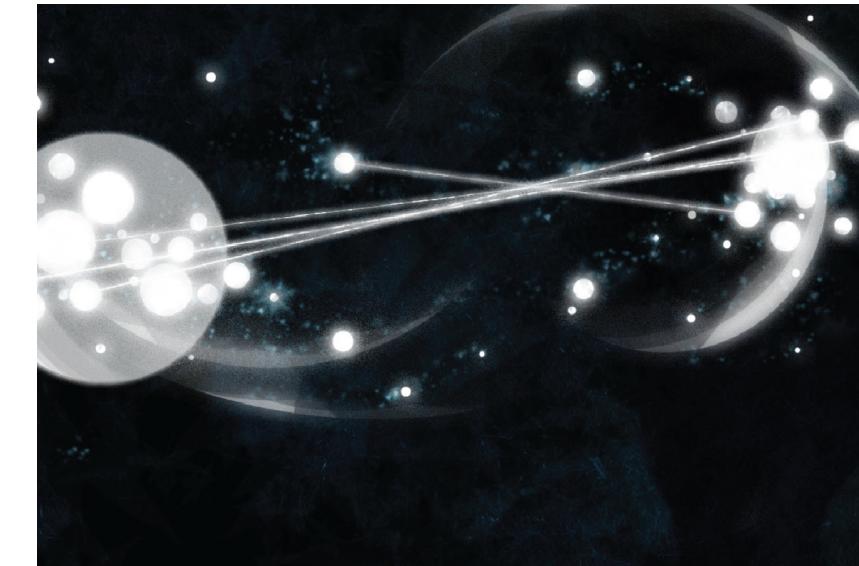
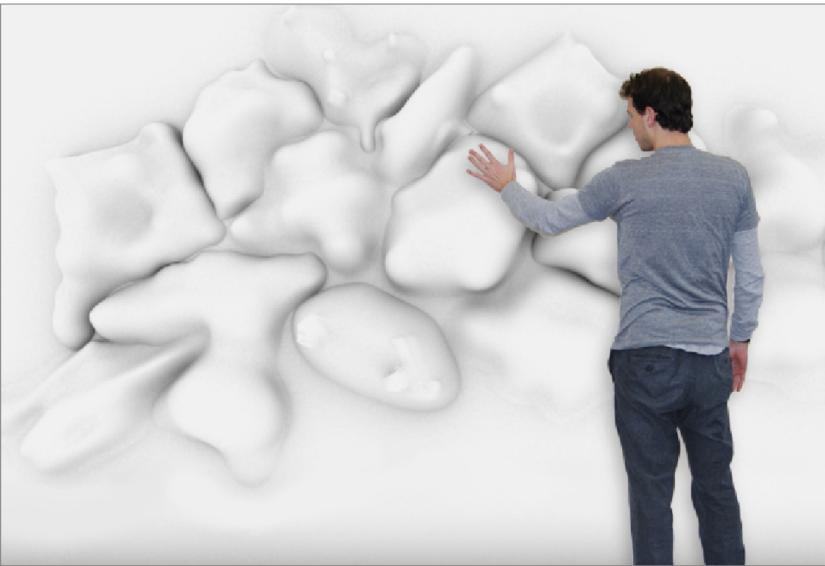
Project Statement

The OEM designers perceive Bayer MaterialScience as an anonymous provider of material for making products. These perceptions can be changed by putting a face on Bayer MaterialScience, displaying their willingness and desire to collaborate with designers while capturing a visual record of the design process. The material captured during this process will be crafted into a book showing the steps from concept and ideation, through the unveiling of the final design piece(s). The process book would create a visual design piece, which could inspire the OEM designers to envision future collaborations with Bayer MaterialScience. Showing the collaboration between the designers and Bayer MaterialScience puts a face on the company making it about a relationship with a person as opposed to a faceless entity.

The process book will consist of three books separated into different sections to denote the different steps in the design process. Those sections include the initial research and ideation phase, the design and prototype phase, and the final design phase. The books will interact with the slipcase based on the order in which the individual books are stacked within the case. Placing the books inside the slipcase in a different order will create different results. By separating the documentation into three books with an interactive slipcover and having the order of the books dictate the visual display of information, the message of collaboration and participation is continued within the format of the book itself. The slipcase would be made using PC glazing, while the books would use various Bayer coatings to create a haptic response from a select group of interior page.

Technology used for prototype development

Hardware: Arduino Mini microcontroller, high-output LED



VIRAL DISTRIBUTION

All of the events and interactive pieces will be recorded to give the experience the ability to carry on after the original event. This phenomenon of an experience or instillation living beyond the initial event is in many ways more important than the event itself. In today's age of user created content and the almost instant spreading and dissemination of information, a seemingly small event can garner a massive viewing audience through a web presence.

Using online tools like YouTube, (youtube.com) and Vimeo (vimeo.com) video content can easily be spread and viewed by designers and potential collaborators. These tools are free and widely used website. The sites are often referred to as destinations to check out video content, and some videos quickly get over a million views within days, if not hours. These videos can be linked to within email correspondence as an addition to your

signature, made available through the Bayer MaterialScience website, or any other appropriate digital media used within Bayer MaterialScience (i.e. presentations, and inter-office correspondence). The quick spread of information in this way maximizes the efficiency to which multiple users can view the same content. In addition, high definition content can now be made available for users to view online, allowing for greater quality video available anywhere throughout the web.

Beyond the Internet, the video content can be spread by way of uploading them onto give-away USB hard drives and displayed in the Bayer MaterialScience facility waiting area.

With the new redesign of the Bayer MaterialScience facilities, implementing any of the interactive displays seem to be the best choice. With a dedicated space for

showcasing Bayer Materials, using a wall, floor, ceiling, or digital display to allow visitors to participate in one of the interactive pieces would be an effective way to continue the Bayer messaging form one experience to the next.

Initially, BMS' newly renovated showcase gallery offers a unique opportunity to engage office visitors in Bayer's approach to presenting themselves as collaborators. Beyond the initial integration into Bayer's facilities these can exist as portable displays and the content will be tailored to meet the needs of different environments. This allows the content to adjust as needed in order to create one consistent representation of Bayer MaterialScience while still delivering an effective message to OEM designers.