

A union of art and engineering at the Instrumentation and Model Facility

Challenge

Artist Kathy Marmor has been shown in both the United States and abroad. At the University of Vermont, she teaches in the Department of Art and Art History. Kathy is a Vermont Art Council grant recipient and was recently awarded a University of Vermont competitive research grant. She is known for her work with interactive installations. Marmor approached the IMF for help on her recent work, *The Messengers*, an interactive piece that draws upon social media to highlight the possibility of electronic miscommunication and unexpected responses. The viewer is invited to send a text message to the LED-lit fans. While the message is being displayed, a computer searches Twitter for tweets that contain key words from the message. These tweets are recombined and displayed on the fans as humorous mash-ups. The biggest obstacle of the project was that the fan could not be wired for power and communication because of its rapid rotation. Efficient wireless data needed to be successfully transmitted between the computer and fans. The fan also had to utilize a power source that would last for up to several weeks, and battery power was not an option. A fundamental aesthetic issue was that there was too much display flicker in the

Solution

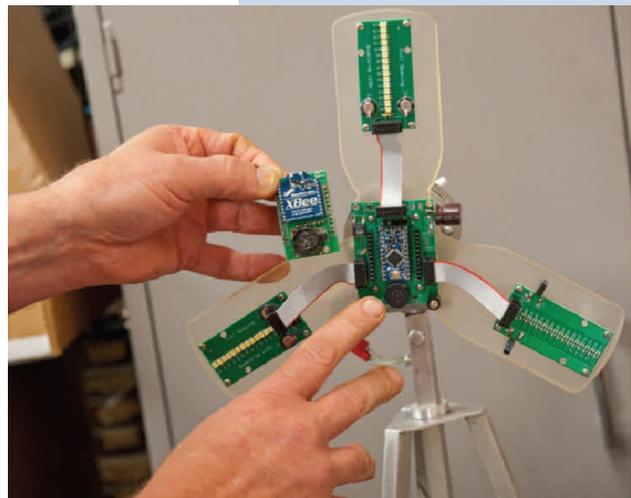
Engineer Michael Fortney from IMF worked with Kathy to develop solutions for the obstacles her project posed. Power was directed to the rotating fan from the inner attached motor which eliminated the need for a wired power source. XBee wireless modems were used so the computer could successfully communicate messages to the fans. To resolve any visual quality issues, a position sensor was used to properly align the LED text. The best solution to eliminate flickering issues of the LED lights was to have three fan blades instead of a singular one. This created bright and clear messages for the viewer to enjoy.

Case Overview

Kathy Marmor is a widely shown artist, grant recipient, and assistant professor in the University of Vermont Department of Art and Art History. For an upcoming project, she required:

- Rotating wireless fans capable of receiving and processing text messages
- Communication between a computer and the fans
- Legible message display while fans are in motion

Using a combination of LED lights, position sensors, motors, and wireless modems, the IMF was able to bring Kathy's project to life



Results

The IMF was able to meet Kathy's unique design needs and facilitate an otherwise challenging build. Through frequent meetings, the IMF staff engaged Kathy along every step of the process to ensure that their solution was in line with Kathy's vision. Together they created a finished work that surpassed the customer's expectations and was ready for exhibition.

"IMF has the resources and personal knowledge to address a variety of engineering challenges. I was impressed by the IMF's willingness to engage in a creative dialogue with a faculty member who had no engineering experience. Michael Fortney is an excellent problem solver with a meticulous eye for detail. He went out of his way to explain the fundamentals of electronics and programming as he met every challenge the project threw at him with fearless ingenuity. "

—Kathy Marmor



A demonstration of the fans in motion

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DID YOU KNOW?

The IMF is a non-profit (509a1) organization. This means we do not have profit margins to achieve and therefore can afford to offer superior value to our customers. Here at the IMF, we focus on solutions – not earnings.