Responsive Surfaces: Project 2: Part 2
Keenan May

My research has hinged on two topics within genre of responsive surfaces: luminance control and networking a series of objects. These topics have been critiqued in terms of their ability to facilitate participation with a user and encapsulate emergent qualities based on the user input.

The work selected for project 2, research and criticism, include:

Dune 4.2 by designer Dan Roosegaarde in Rotterdam
E-Static Shadows by designer Dr. Zane Berzina and architect Jackson Tan in London
Evolving Spark Network by designer Edwin van der Heide in Rotterdam

The three projects involve different types of user input data to control a space or an object’s luminance. E-Static shadows deploys its technology via a textile installation; embedded electronics work to create change within the object they reside. E-Static Shadow’s is also the only project that utilizes truly ambient information. The user input is the static electricity that their body, clothing, object, emits. E-Static Shadows’ ability to respond to a user is currently restricted the wall-mount installation of the textile—to engage the technology one must walk up to the wall. The response to the user is only the dimming of LEDs that near the static charge of the user. The textile has no emergent effect from the user input.

Dan Roosegaarde and Edwin van der Heide have both found opportunities in their work to allow for emergent patterns from the initial input of the user. Both projects trigger a response when an object (in both cases, a person) becomes detected. In Dan Roosegarde’s Dune 4.2 installation, motion from pedestrians on a waterfront walkway trigger a the illumination of nearby objects. The light continues to follow the person by adjacent sections of lights turning on and previous sections of light turning off. One motion is no longer detected the networked objects put on a display of random input. Heide’s Evolving Spark Network users a similar technique of triggering a response once motion is detected but rather than continuing to reflect the motion of the person the luminance (created by a series of sparks) is created by the spark following an unpredictable a path across a grid of spark bridges. In this case the user is only responsible for the initial spark.

The research, though not specific to this area of study, has led me to become interested in the object’s or installation’s ability to take on a role of responsiveness that is stored and used after the interaction with its user. I am interested in the installation’s ability to collect and manage data that can be used for analysis of space and objects within the space. I find value in the ability to collect detailed information of occupancy and the use of a space for the control of building systems (for the purpose of minimizing energy use), facilitating communication between a product’s creator and their product’s location in a space and its corresponding traffic (tracking data in retail), and to use for the study of circulation and human behavior.
responsive surfaces critique
Dune:
Designer Dan Roosegaarde /Rotterdam/ q: 0:44-4:58, 5:50
series of objects connected to a network
LEDs, PIR/USRF Sensors, Microprocessors
'Planted' using plastic rod
works along path
e-static Shadows:

Designer Dr. Zane Berzina and architect Jackson Tan /london/  
q: 0:44-4:58, 5:50
• merging textile and circuitry (e-weave)
• woven LEDs are powered by source
• static charge collected by weave transistor
  switches deactivate LEDs
• works as a surface condition

process photos (click)
how transistors work (click)
Evolving Spark Network:
Designer Edwin van der Heide /Rotterdam
• ceiling grid structure of "spark bridges"
• motion sensors, a lot of electrical engineering
Versions on Networking Charge

in the case of this critique, with the intention of outputting change in illuminance to represent responsiveness or interactivity
Triggers

Dune:
Illuminance change triggered by motion

E-Static Shadows:
Illuminance change triggered by aggregation of static charge

Spark Network:
Illuminance change (spark) triggered by initial motion and evolves through series of triggered sparks
Participation

Dune:
Participant  //  Illuminance

E-Static Shadows:
Participant  //  Objects  //  (-) Illuminance

Spark Network:
Participant  //  Spark (becomes participant)  //  Illuminance
ancillary/byproduct conditions

Dune:  
Participant // Illuminance // lingering effect, transient response of tracking motion, the retreat of the illuminance when object falls outside of sensor range

E-Static Shadows:  
Participant // Objects // Illuminance

Spark Network:  
Participant // Spark // Illuminance
ancillary/byproduct conditions

**Dune:**
Participant // Illuminance // lingering effect, transient response of tracking motion, the retreat of the illuminance when object falls outside of sensor range

**E-Static Shadows:**
Participant // Objects // Illuminance // variability of the carried static charge by fabric type, humidity, and other environmental factors

**Spark Network:**
Participant // Spark // Illuminance
ancillary/byproduct conditions

**Dune:**
Participant // Illuminance // lingering effect, transient response of tracking motion, the retreat of the illuminance when object falls outside of sensor range

**E-Static Shadows:**
Participant // Objects // Illuminance // variability of the carried static charge by fabric type, humidity, and other environmental factors

**Spark Network:**
Participant // Spark // Illuminance // the network's autonomy, the spark's ability to evolve from a single source - travel across the grid at random
Initial Intention:
illumination project that has byproduct or capabilities of showing time, memory, path

Chronographer v.1 Installation
Scattered Lights:
Designer Jim Campbell /madison square park/
tectonics:
• 1600 LED
• 16'x16'x60' 3D grid
• individually HIGH/LOW via program
• perplexing pixelation using DOF
• works on various scales
• creates space between (paths)
• effected by environment
• collecting via proximity and level of static charge

• mirrors/reflects objects/bodies

• creating awareness of invisible force

• playful