ClockooBird is an interative window installation.
ClockooBird imagines what life is like for the modern cuckoo bird,
no longer on a set schedule but always required to be ready at a moment's notice.

CLOCKOOBIRD
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ITP - NYU
POP UP WINDOW DISPLAY
2016

DESIGN CHALLENGE

To create a cohesive two-window display that represented the concept of "time".

How do we create interactive displays that engage the public with a distinctive voice or style?
In New York City, every storefront window has the possibility to tell a story, spark a conversation or inspire an interaction. This workshop focused on creating innovative interactive pop up installations designed for public window displays. A successful window was one that clearly delivered a message directly to the public. Over seven weeks, students concepted, prototyped and built an interactive experience meant to be installed in a storefront or commercial display. This course also explored lighting, design, maintenance, and budgeting of durable interactive window installations.

INSPIRATION

Throughout history, the main function of a timepiece was to simply tell time. Now the modern timepiece notifies us not only of the hour but when confronted with texts, emails, appointments, and a myriad of other alerts. Given the new function of a watch (e.g.) an apple watch, we wondered how a cuckoo bird would be able to manage all of these modern functions.

OUTCOME

ClockooBird imagines what life is like for the modern cuckoo bird, no longer on a set schedule but always required to be ready at a moment's notice. We created a design that articulated:

01 the interaction of the bird with the user

02 the internal workings of the clock and the birds' adaptation to these technological advances

Created in collaboration with Kevin Stirnweis, Xinyao Wang and Shir David.

CLOCKOOBIRD

MY ROLES

creative direction
physical computing
installation
project management
production management
maintenance
fabrication

01 | INTERACTION OF THE BIRD WITH THE USER

On this side of the installation, we invited users to interact with the bird. A button, when interacted with, engages the bird and prompts her to come out of the clock. The doors open, the bird makes her appearance, she takes the user's picture and quickly retreats back to her abode.

02 | INTERNAL WORKINGS & ADAPTATION TO MODERN TECHNOLOGIES

This is the inside of the clock where the modern functions of the bird are truly articulated. Her schedule, email and tweets are shown here. The picture that she took of the user in window one us sent to ClockooBird's twitter feed is shown on the screen. The user after having their picture taken can immediately see their image on the twitter feed. ClockooBird also invites the user to make appointments. Confirmed appointments appear on her schedule. Her emails are also displayed. Look again and you will see the motorized gears of the clock churning away. ClockooBird sits perched in her nest managing all of this.

DESIGN PROCESS

The traditional fabrication of these wooden cuckoo clocks resonated with us. We made the design choice to use wood for our structure and to have a the user interact with a physical thing,

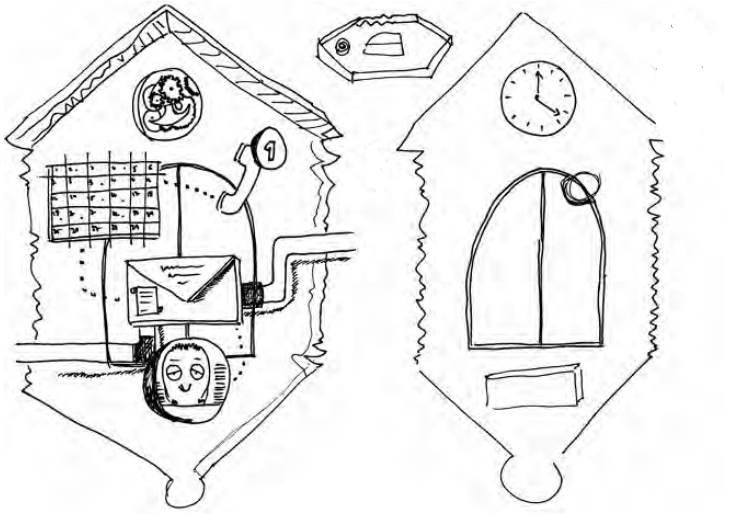
Cuckoo birds emerge from their clocks. We made the design decision to make the bird emerge from the clock (using a linear actuator). This feature was later modifited due to space constraints.

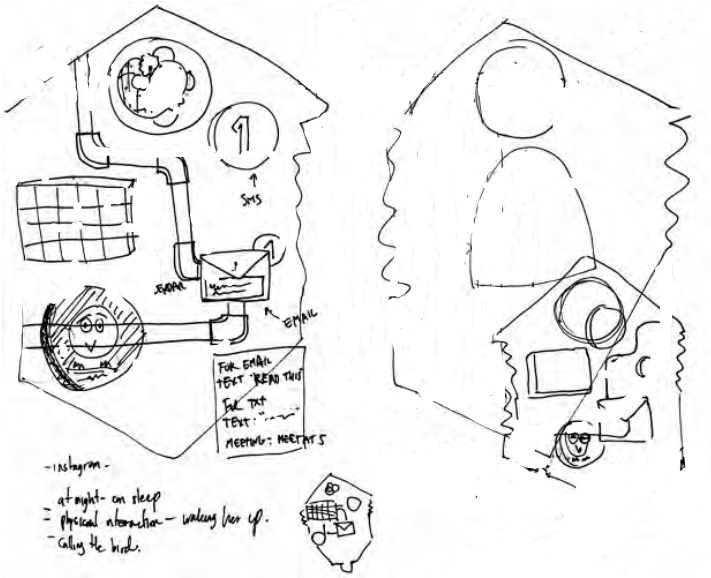
IDEATION

DESIGN CONSTRAINTS
- theme: "time"
- designing for 2 windows
- making something feasible
- timeframe of 6 weeks to design and install
- dimensions of the space

DESIGN DECISIONS
- show the front and back of a cuckoo clock
- the front to show the time and the bird: simple and clean.
- the back to show the inner workings of the clock: messy and involved.
- intergrate social media
- create a wooden structure with layers of elements
- fabrication must be flawless

INITIAL CONCEPTS
- *Portal with 2 windows*
- *Blackout with 2 peepholes*
- *old/new object Readymades*
- *Seasons*
- *What lives for a week?*
- *Something that grows within a week*
- *Kinetic sculpture - constantly growing*
- *Items that tell time: sundial, phone, watch*
- *Times w/ meanings:*
    - *4:20 - smoke weed*
    - *11:11 - make a wish*
    - *9:11 - 9/11*
    - *2:00 - bewitching hour*
    - *4:00 - start of carnival/j'ouvert (daybreak)*
    - *12:00 - lunchtime*
    - *24:00 - midnight*
- *One window affect the other*
- *Time re. Music - create a symphony*
- *Play with space*
- *4th dimension*
- *Instrument - solenoids*
- *Brain processing - time delays*
- *Unconscious perception of time*
- *How body/eyes perceive time*





TESTING DESIGN CONCEPT

Testing the design of the cuckoo clock

PAPER PROTOTYPE TEST

A life-sized prototype of the clock design was made and tested in the window of the installation space.

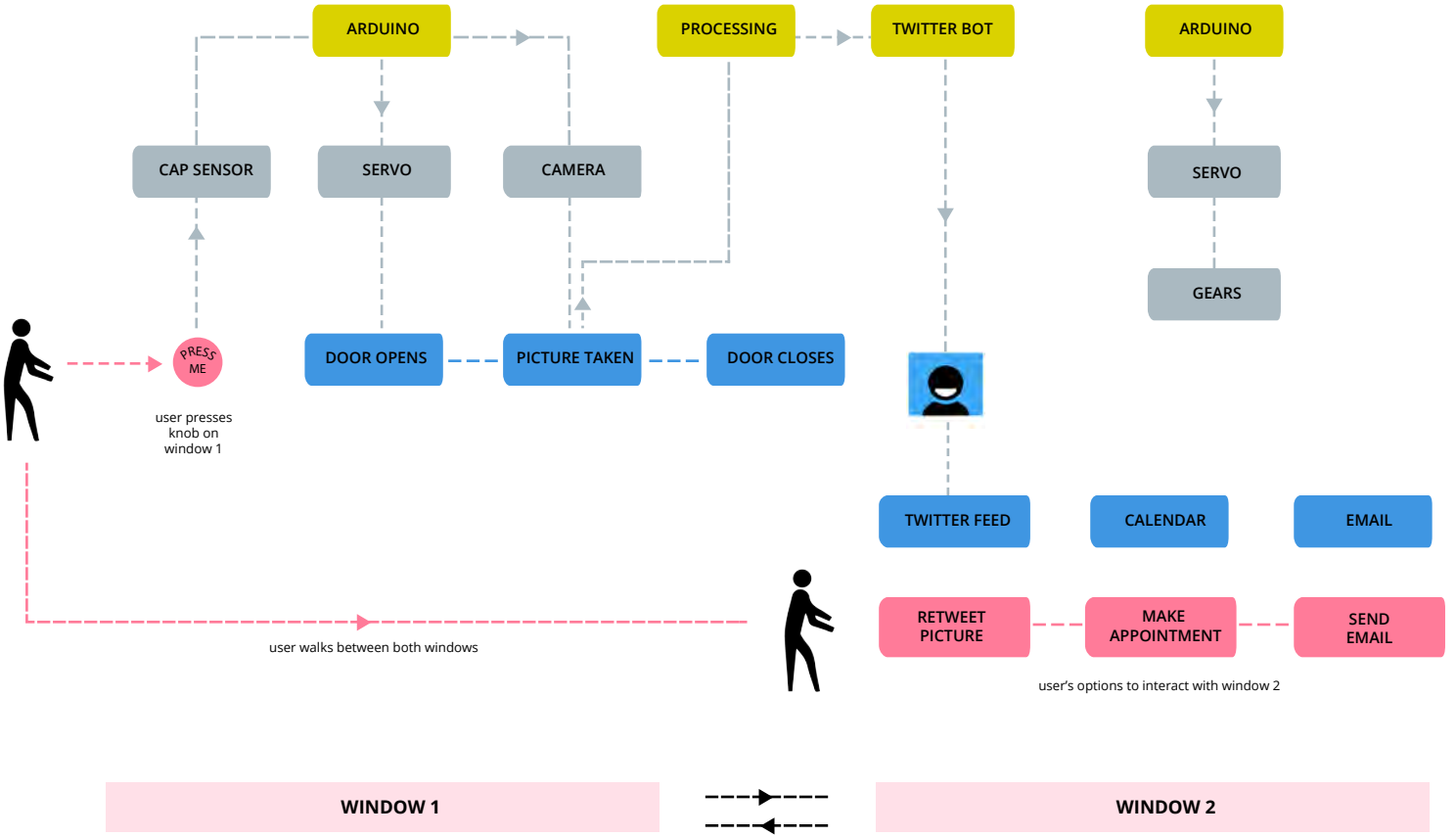
WOOD PROTOTYPE

With the dimensions verified. Another prorotype was made using thin plywood.

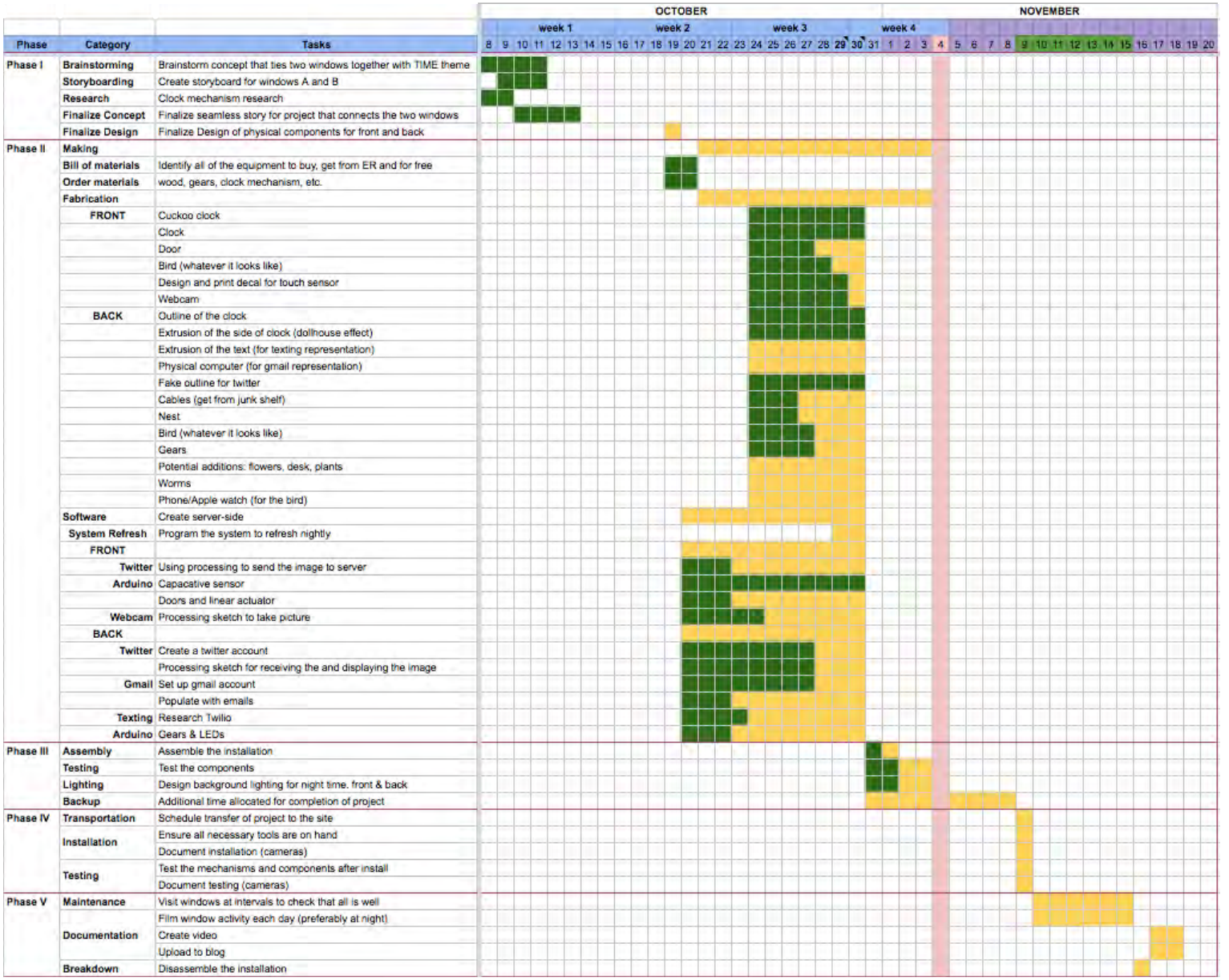
WOOD PROTOTYPE TEST

This prototype was tested in the window. The accent at the bottom of the clock broke off and was consequently omitted in from the final design.

FINAL DESIGN



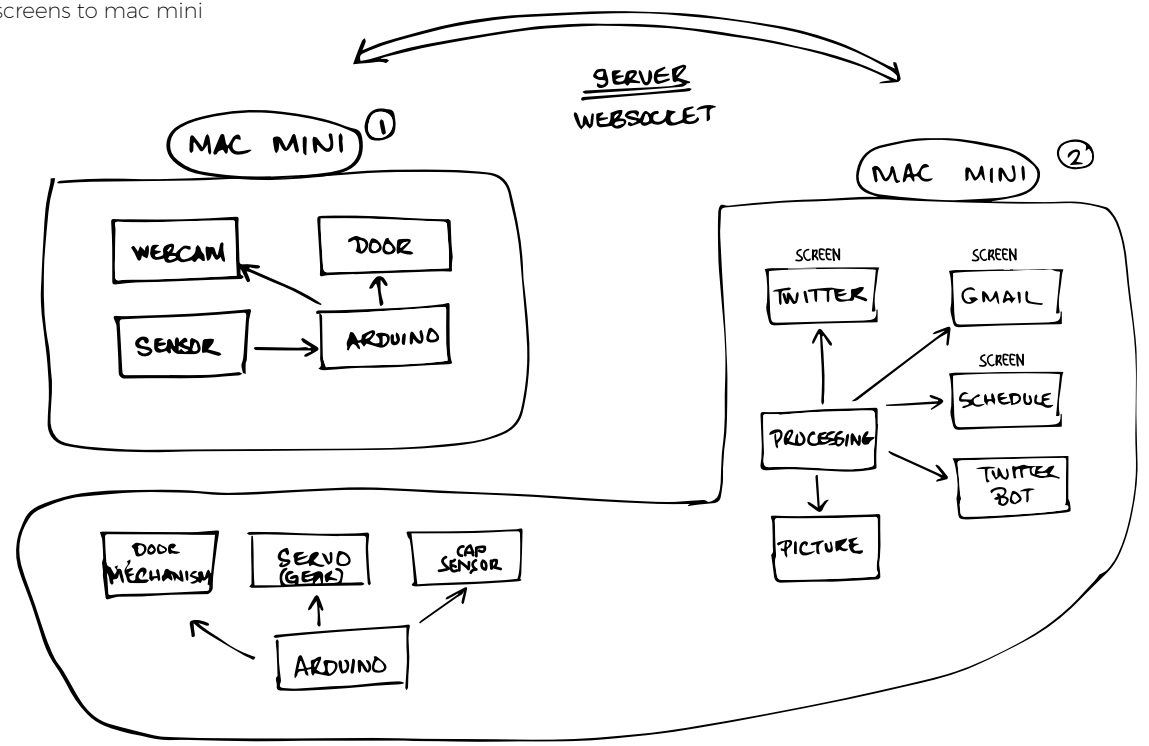
IMPLEMENTATION



Phase	Category	Tasks
Phase I	Brainstorming	Brainstorm concept that ties two windows together with TIME theme
	Storyboarding	Create storyboard for windows A and B
	Research	Clock mechanism research
	Finalize Concept	Finalize seamless story for project that connects the two windows
	Finalize Design	Finalize Design of physical components for front and back
Phase II	Making	
	Bill of materials	Identify all of the equipment to buy, get from ER and for free
	Order materials	wood, gears, clock mechanism, etc.
	Fabrication	
	FRONT	Cuckoo clock
		Clock
		Door
		Bird (whatever it looks like)
		Design and print decal for touch sensor
		Webcam
	BACK	Outline of the clock
		Extrusion of the side of clock (dollhouse effect)
		Extrusion of the text (for texting representation)
		Physical computer (for gmail representation)
		Fake outline for twitter
		Cables (get from junk shelf)
		Nest
		Bird (whatever it looks like)
		Gears
		Potential additions: flowers, desk, plants
		Worms
		Phone/Apple watch (for the bird)
	Software	Create server-side
	System Refresh	Program the system to refresh nightly
	FRONT	
	Twitter	Using processing to send the image to server
	Arduino	Capacative sensor
		Doors and linear actuator
	Webcam	Processing sketch to take picture
	BACK	
	Twitter	Create a twitter account
		Processing sketch for receiving the and displaying the image
	Gmail	Set up gmail account
		Populate with emails
	Texting	Research Twilio
	Arduino	Gears & LEDs
Phase III	Assembly	Assemble the installation
	Testing	Test the components
	Lighting	Design background lighting for night time, front & back
	Backup	Additional time allocated for completion of project
Phase IV	Transportation	Schedule transfer of project to the site
	Installation	Ensure all necessary tools are on hand
		Document installation (cameras)
	Testing	Test the mechanisms and components after install
		Document testing (cameras)
Phase V	Maintenance	Visit windows at intervals to check that all is well
	Documentation	Film window activity each day (preferably at night)
		Create video
		Upload to blog
	Breakdown	Disassemble the installation

TECHNOLOGY

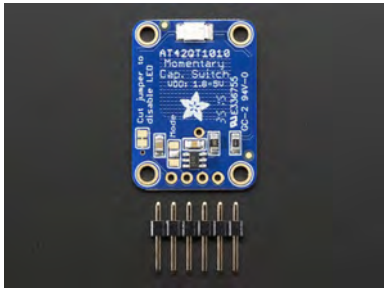
ARDUINO: servos & capacitive sensor
WEBCAM: picture
SERVER: Node.js (server)
PROCESSING: Twitter Bot
COMPUTING: 2 Mac Minis, 2 keyboards & 2 mice
MONITORS: screens
DUAL HEAD TO GO: connects 3 screens to mac mini
GOOGLE: gmail & calendar



① 3× servo continuous
② 3× screens
③ Dual head to go
Display port → VGA ×2
HDMI ?
④ MAC MINI × 2 USB A to B

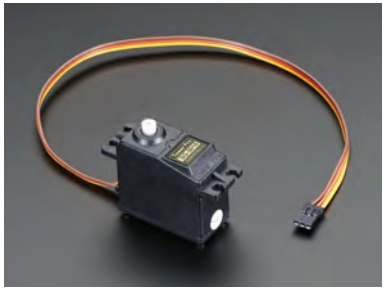
PHYSICAL COMPUTING

Using the arduino microprocessor to control the capacitive touch sensor (doorbell) and the servos (the doors and the gears).



Capacitive Sensor

User touches the glass to which the sensor is attached. A signal is sent to the servo to open the door.



2 Servos

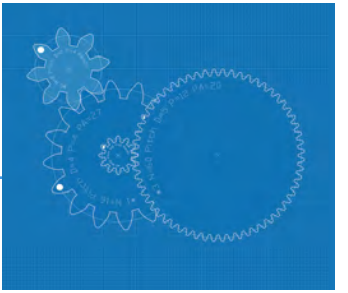
Each servo receives notivation to change it's state, which opens the doors. After picture is taken, closes the doors

Webcam

The camera then takes a picture of the user. Sends signal to arduino to close the doors.

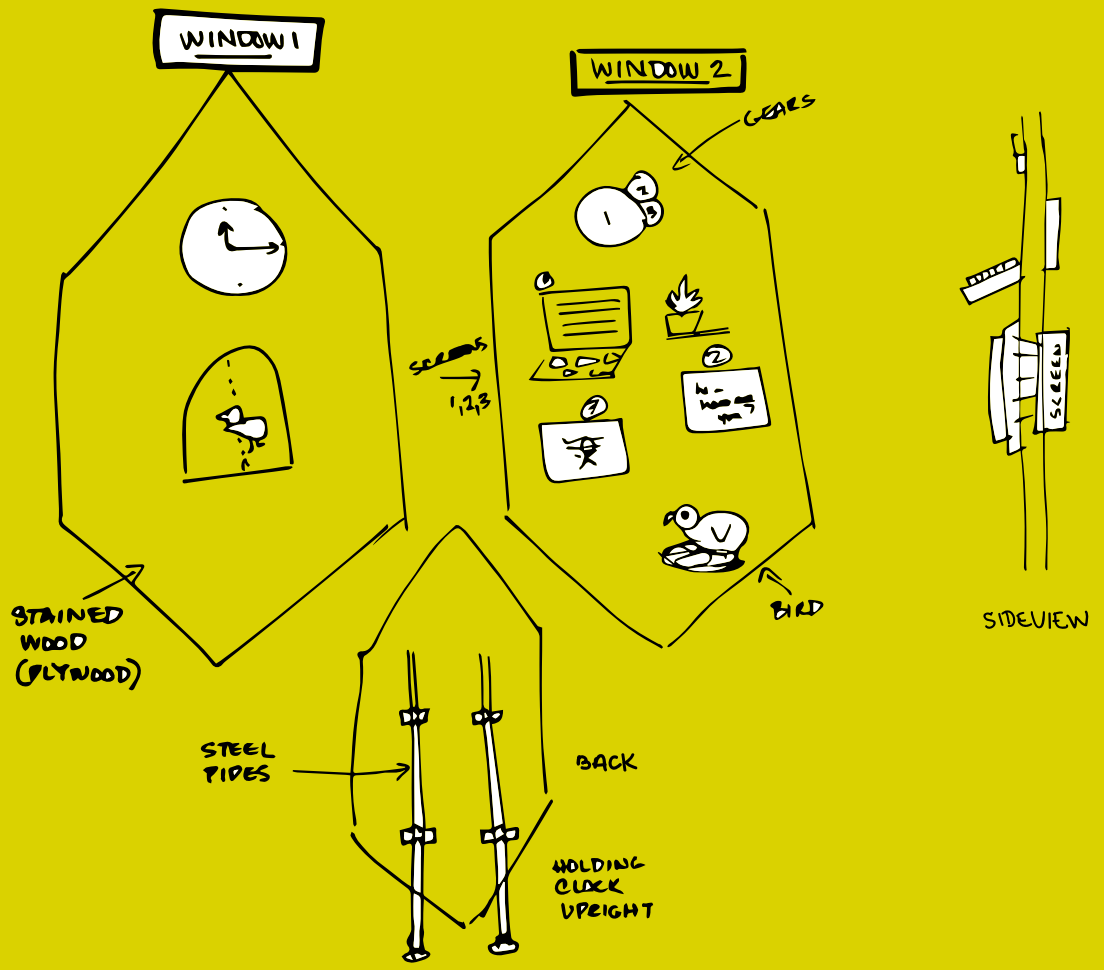
Continuous Servos

This servo runs continuously to control the gears on clock #2 (i.e. the inner clock).

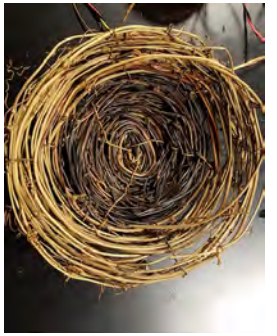


Calculating the size and thread of each gear to achieve balance.

PRODUCTION



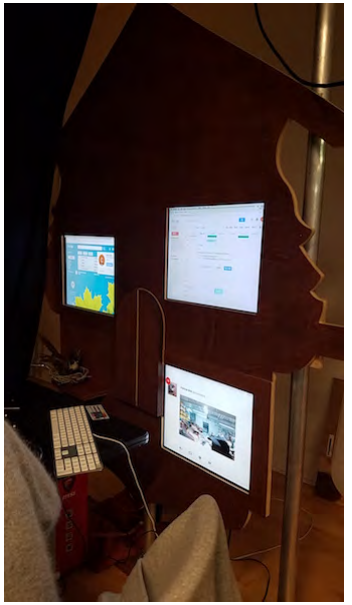
Two clocks were fabricated using plywood and cut on the CNC machine.



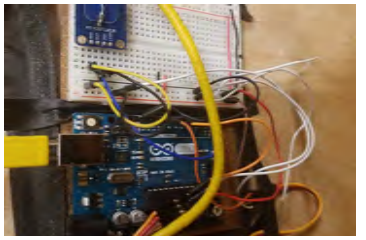
Design elements - fabrication of the bird's nest.

Each clock comprised of three parts, which were later connected at the back. Each clock was fastened to two steel poles and a wooden base.

Back of the clock showing how the 3 sections were fastened. The base was anchored in place with sandbags.



Front of clock # 2 with 3 screens attached.



Arduino connections and testing the capacitive touch sensor. This needed to work through glass. We added copper tape to create a larger conductive surface

Creating the mechanism for the door to open using the servo. Testing the device.

Clocks before clock 2 was stained.

Cutting the steel rods to size.

Design elements were added to the installation. The nest was fabricated and bird added.

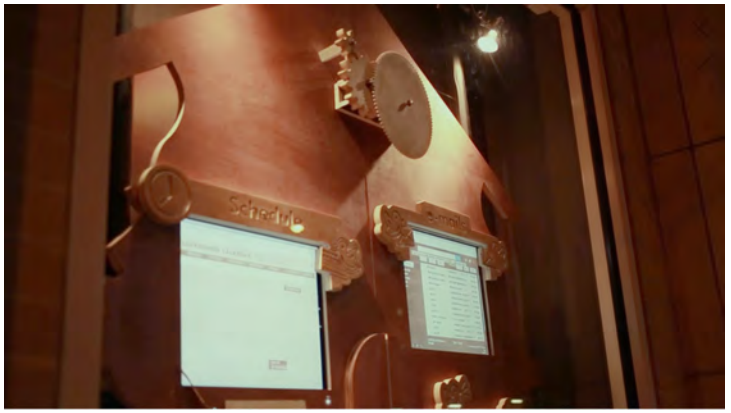
INSTALLATION

Transporting the clocks through Washington Square Park to the installation site.

Setting up the system. Wires, mac mini and monitors secured. Base of the clock is fastened to the shallow window to prevent tilting.

Adding black tape to the metal poles for a more polished look

The back of clock #2. LED lights added to create ambiance.

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BY KEVIN G STIRNWEIS, NIKITA HUGGINS, XINYAO WANG AND SHIR DAVID


CHECK TWITTER
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USER INTERACTION

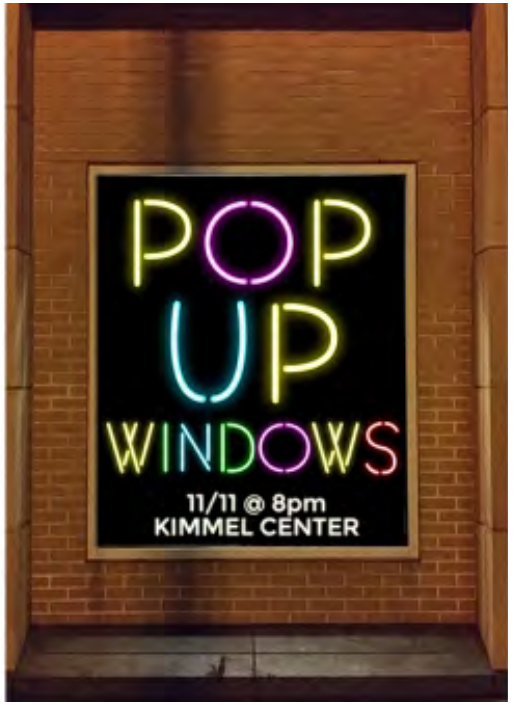
Tweet

Tweet

DOCUMENTATION

https://vimeo.com/194120898

EXHIBITIONS




Do you want
to talk?
IT'S ABOUT TIME