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Proposal

LocArt

My starting topic is a wearable technology which incorporates the users GPS location, temperature, a photocell and a heartbeat sensor to accumulate data of a single person or a multitude of people, depending on how many created. Through the various variables emitted by theses sensors, my project will input that data into generative art via Wi-Fi signals.

My initial idea was to create a sense of communication between users who generate high and low heartbeats, however that proved to contain many inconsistencies. This project gives a visual usage to statistics and data, with the usage of the user data, the various variables outputted will be generated onto a web page in the form of colored lines. The lines will be mapped to the user's location, color size, curves and other factors will be based and mapped on the web page based on the sensor values.

The project will be important for others as it will demonstrate a visualization of their data, as well as others. Through the colored data, we can see certain aspects of one's life, why their heartrate went up at this moment, one day it took them five minutes to walk a certain distance, today it took twenty, this data will be visualized onto the web page and certain patterns or outliers may be noted on certain days.

This topic is important for me as I find it interesting to view data, which is usually comprised of statistics, number and bar graphs, through art. Art will be the medium of which data will be viewed, and through this art, we can view where patterns are potentially disrupted throughout our lives.

The relationship I would like to encourage between the users and the space is a relationship between user input, data and art. The point of the work is to collect user data and to submit their data to be viewed by them and others to create a collaborative artwork, which represents different instances in people's lives. Whether they were in a state of running, high heart rate, cold or walking faster than normal, this data will be viewable for all in a colorful art piece. I would like to create this relationship since humans are a collection of data, patterns and actions we do in our daily lives can be all collected through data. However simply outputting this data in a standard number format can be quite uninteresting. However by creating an artwork with this data, the user may be inclined to want to view it more, to see the patterns or chaos in other peoples data.

Using this data, the user can be able to reflect on their day, as well as others. The data visualizes something that might have happened in the user's day that may be above normal for their patterns or the patterns of the data. Through the different color codes and variables, the user can infer certain aspects of a person's life, for example, a user walks to the bus and takes five

minutes to get there, however one day it takes two and their heartrate is accelerated or their body temperature is higher. We can infer that the user ran to the bus that morning, as they were presumably late.

The project space is primarily based on collaboration among users. The more user's input, the more data will be processed, and a larger type of artwork will appear. One user may input a certain amount of data, but the data will not be witnessed as art, but merely colored lines with statistics, as more users input their data, the nicer the artwork that will appear, the lines may assemble and form a concrete pattern. The purpose of the collaboration is to create a visual data structure with meaning, the lines will have meaning to them and through theses lines the viewers can witness certain patterns among each other or within themselves.

Similar Projects

Art Made of Storms

"Artist Nathalie Miebach takes weather data from massive storms and turns it into complex sculptures that embody the forces of nature and time. These sculptures then become musical scores for a string quartet to play."

The project "Art Made of Storms" by Natalie Miebach was created to record the interactions of barometric pressure, wind and temperature readings during the hurricane Noel in 2007. The art piece was mainly visual and auditory as it was a physical sculpture, every aspect of the sculpture can be read as a music note. For that project, Natalie used information from the web, satellite images, weather data from weather station and offshore buoys to compile her data into numbers. From those numbers she translates them to vertical and horizontal elements which over time create form. She explains that in her artwork, every bead and string represent a weather element, and vertical elements also factor in a specific hour of the day. Natalie demonstrates that all the factors within her project are simply numbers, a time cycle, temperature range, water temperature, air temperature, all this data from a natural system has been translated into numbers, visualized into a sculpture then created into an auditory sculpture. The usage of music through her sculpture is done by musicians, where, Natalie assembles the music interpreted from her data to a musical score for musicians to play.

Flight Patterns by Aaron Koblin

Aaron Koblin called Flight Patterns is an artwork which visualizes airplane traffic over North America for a 24-hour period. Koblin describes the flight patterns as they start the day, to where they end, the visualization starts with a fade to black which represents the sleeping patterns. This is followed by a West coast planes moving across, then east coast, followed by European flights. The flights are visualized through a small light where each represents a plane and their trajectory. At the peak, 19000 airplanes were recorded in the sky at once over North America. Koblin then color codes the data by type, where it highlights the diverse aircrafts in the sky. Different colors may represent altitudes, plane models and other factors used in the data. Koblin

also uses the airports in his data, where the user can see the different patterns and types of traffic at various airports. Using that data, Koblin created various color-coded artworks which took the data from the planes to create different types of images. Depending on the variables he inputted, the colors of the image would change. In Koblin's data, the user can pull out the data that they wants and create a visualization based on those parameters set.

Manhattan: A Tale of Two Population Extremes – Justin Fung

This map provides a data visualization of how Manhattan's population is distributed hour by hour. The project brings into question the importance of urban planning, public safety and geographic location. Through the interactive map, the user can view the points of population density based on every day, every hour of the city. Through this visualization, the user can see where the population density spikes, the day and the time. "The population estimates are the result of a combination of US Census data and a geographic dispersion of calculated net inflows and outflows from subway stations, normalized to match population daytime and nighttime estimates provided by a study from NYU Wagner." The statistics show that Manhattan has a population of 1.6 million, however during a typical work day, the amount of people being in Manhattan rises to four million during the day and two million at night, the surplus at night may represent workers and visitors. The visualization show that, on average, around two pm on Wednesdays, Manhattan reaches its peak population density, with a density of four million. The districts south of 59th street alone contain around 2.7 million people at peak time. Finally, Midtown and the financial district's population density increase by 4X and 10X the regular population residency during the day. Through the data of population location a visualized map can but into perspective how many people actually populate the streets of Manhattan at any time.

My Project

These three projects all contain the same aspects as my project, they all input raw data, turn them into variables and integers and produce artwork. The data is visualized in an artistic form which is represented through an image, which the users can select the data they wish to view. The three projects shown however, do not incorporate any user input, each project took data from a statistic at one point in time and inputted it into their code. The difference with my project is that, this project is constantly evolving based on the user, while the user inputs data, the artwork changes, this is not a static piece but a dynamic one.

Breakdown of Intention and Schedule

This part is made to visualize the components needed to create the hardware part and programming libraries or code.

Hardware

Arduino

Wearable (Bracelet or wristband)

Wi-Fi module (ESP8285)

Heartrate monitor (SEN0203)

Temperature sensor (SENS-74)

Light controlled photocell

GPS Module (ARD-GPS-01)

Software

Arduino webduino library – Web server library

CMD-Messenger Library – Transmit messages to and from the Arduino