

# PCOMP Final Project Proposal

## Description

The project aims to explore our senses and create an output expressing them. It aims for the user to create a visual and auditory output using water as a tool.

It consists of an Arduino Leonardo board, a Capacitive touch sensor, sound sensor, LEDs, and a speaker. Capacitive touch sensor will take analog inputs from the water. When user touches the water the changing values will create sound. I am planning to use the tone() library of Arduino to create sounds. Different touches will create different sounds, for example one finger inside the water will create a lower frequency sound than two fingers. I will use a speaker for the sound output. Sound sensor will take inputs from the sound (volume or counting beats) and adjust the colors according to the sound. LED strip will also take water touches as an input. Two fingers in the water will light up more LEDs than one finger.



Users will interact with the water to create visual and audible effects. More than one person touching the water will create a different effect than one person touching it. Or if the user holds hands with another person and touch the water the value will also change, which will affect the outputs.

## INPUTS:

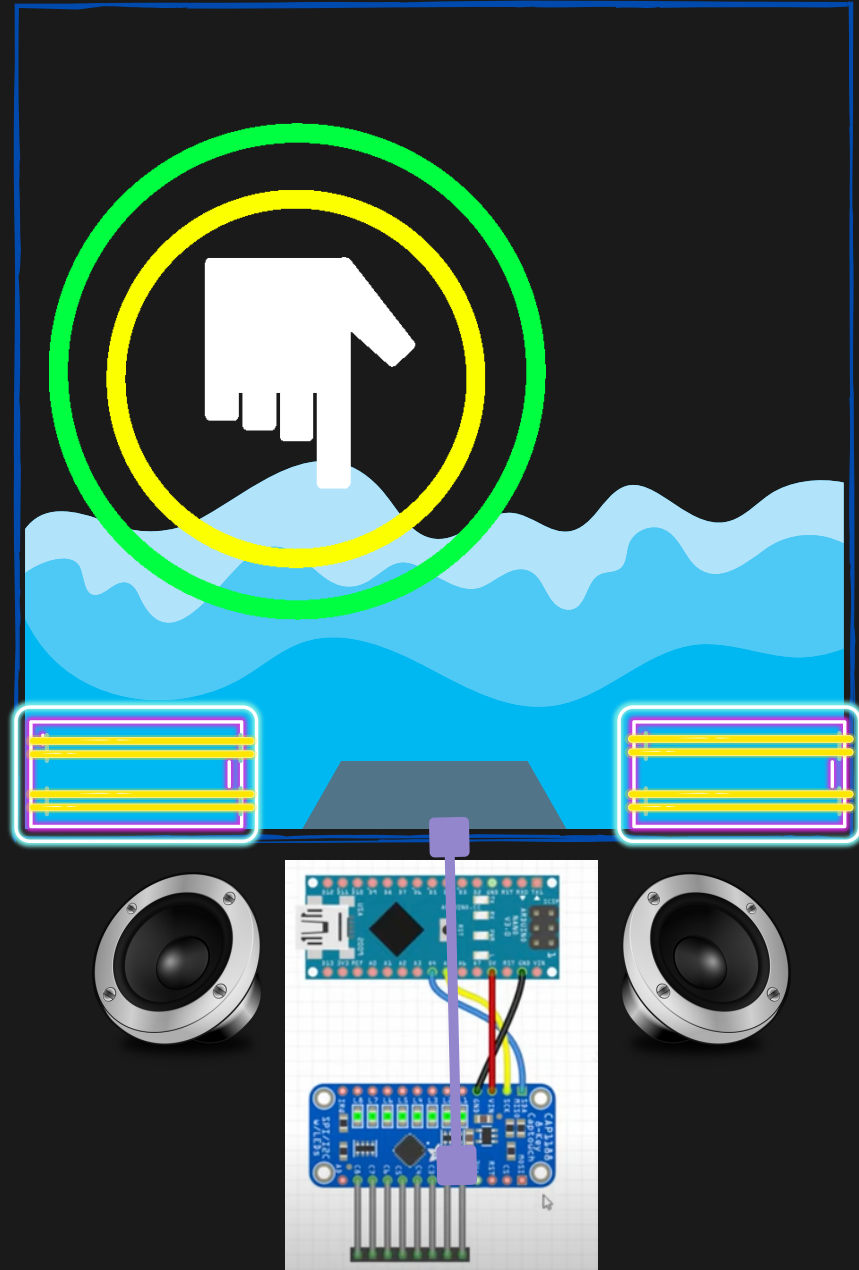
- **Touch the water.**
  - Input will be taken using a Capacitive touch sensor
- **Sound**
  - Values will be taken using a sound sensor and will be inputs for the LEDs.

## OUTPUTS:

- **LEDs:**
  - Water touch as input for the number of LEDs turned on
  - Sound as input for the color of the LEDs
- **Sound:**
  - Different touches to water will create different sounds.

## Equipments:

- Arduino Leonardo
- Adafruit MPR121 12-Key Capacitive Touch Sensor
- LED strip
- Sound Detector
- Speaker



## Future Possibilities

- Using water is like a keyboard.
- Create passwords with water touches, for example; two taps + dipping one hand can be a password. When the system catches this password it will turn on a specific color of leds. Or we can connect an actuator that works when the right password is given.
- Using water as a palette and the touches will be visualized using Processing language.



## References:

<https://www.youtube.com/watch?v=AvMYqBj6CSg>

[https://www.instructables.com/Singing\\_plant-Make-your-plant-sing-with-Arduino-/](https://www.instructables.com/Singing_plant-Make-your-plant-sing-with-Arduino-/)

<https://www.instructables.com/Touche-for-Arduino-Advanced-touch-sensing/>

<https://youtu.be/AhVizoU8CB4>

<https://playground.arduino.cc/Main/CapacitiveSensor/>