## Que Design

*Owner:*

Dr. Cindy Bimle

## 318-366-7633

cpbimle@gmail.com

## *Engineer:*

## Tyler Hight

318-228-4344

[highttyler@gmail.com](mailto:highttyler@gmail.com)

## Adult Pendant

**2 ball check valves** (non-electric)

* One at entry and one at exit of wick chamber
* Entry valve prevents backflow of essential oil into electronics
* Exit valve prevents unwanted escape of essential oil scent
* Exit valve promotes water resistance
* Using waterproof valves and placing another one at air intake could make pendant waterproof
* Can be made if an one cannot be found

Alternatives:

* Flap valve
* None, simply make the exit hole sufficiently small so that not enough scent escapes when propellant mechanism is not in operation

**Micro blower**

* Enables targeted and fast delivery of scent
* Low power requirements
* Quiet

Alternatives:

* Micro fan
  + Almost the same as micro blower, but wider horizontal form factor
* Air pump
  + Has a nozzle so airflow may be more contained, and requires a smaller intake
  + May be slightly louder and use more power

**Custom PCB**

* Significantly smaller than the Arduino Nano due to only needing a single digital output compared to several on the Arduino Nano
* Will include charging port and required circuitry to charge battery
* Bluetooth connectivity for communication with app and heartrate monitor

**Rechargeable battery**

**Housing**

* 3D print/manufacture in ABS
* Fan vents on bottom to promote water resistance and aesthetics
* Isolate fan-wick chamber system to promote water resistance
* Gasket to seal pendant to promote water resistance?

**HR Sensor**

* Collect HR data from popular devices such as an Apple Watch or Fitbit

## Child Pendant

Differences from adult pendant:

* Removeable TPU case outside the ABS housing to improve durability to withstand autistic children, everything else is exactly the same to minimize manufacturing cost