## Que Design

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# Design 1

### Adult Pendant

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

* Located at exits of wick chambers
* prevent leakage of scent
* Promotes water resistance

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 and scent may be more contained, and requires a smaller intake

**Essential Oil Storage**

Ideas:

* Replaceable wick
* Replaceable cartridge

**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
* HR will be obtained through app, not direct connection to the monitoring device
* Connection to remote capabilities (radio?)

**Remote**

* 4 buttons
* Radio?

**Rechargeable battery**

Options:

* Prismatic lithium ion batteries
  + High capacity
  + Stiff
* Pocket-type lithium ion batteries
  + High capacity
  + Flexible
* Pin-type lithium ion batteries
  + Very safe
  + Small
  + Lower capacity

**Housing**

* 3D print/manufacture in ABS
* Fan vents on bottom to promote water resistance and aesthetics, or hooded vents
* Isolate fan-wick chamber system to promote water resistance and reduce scent leakage
* Gasket to seal pendant to promote water resistance?
* Attachment to necklace – hooks, magnets, or what?

**HR Sensor**

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

### Child Pendant

Differences from adult pendant:

* Removable Silicone (TPU for prototyping) case outside the ABS housing to improve durability to withstand autistic children, everything else is exactly the same to minimize manufacturing cost

# Design 2

* Use valves in pumps instead of separate valves.

**Other Ideas**

* Wick that is sealed and is pierced when inserted into pendant
* Replaceable wick instead of one that is re-soaked with essential oil
* Remote