This document serves to describe the necessary functionality of the electronics that control the Purfect cat litter box.

# Overview

The device filters dirty air by drawing air from the cat litter box by means of a Venturi. The water circulation flow is generated with a pump that pumps from a water reservoir back into the same reservoir. The venturi is located on the high-pressure side of the pump (output). The pump is activated when motion is detected. The pump stops automatically after a certain set time. When the manual mode is selected, the pump runs continuously.  
The touch buttons are:  
a. 1 button. ON/OFF switching  
b. 2 buttons +/-. menu scrolling and raising/lowering automatic ON-time.

c. 1 button: selection between auto/man or settings menu after long press.

# Components

1. Water pump (preferably a 5VDC version)
2. Venturi nozzle
3. Motion detection sensor
4. PCB with relay for the water pump
5. 4 touch sensors for menu control
6. NeoPixel LED for menu indication
7. speaker

# Electric Diagram

Diagram, schematic

Description automatically generated

A close-up of a toy

Description automatically generated with medium confidence

# Shell

A computer on a white surface

Description automatically generated with low confidence

A picture containing floor, tiled, tile

Description automatically generated

Location of touch buttons

Location of NeoPixel

# Specifications

1. All components external to the PCB should be easily replaceable with a connector  
   (Touch buttons, NeoPixel, Motion Sensor)
2. Power rating should be 5VDC.
3. An extra USB-C should be added for the power supply since the onboard USB-C cannot provide enough current for the water pump.
4. The possibility to update the device is required. (SD > Bluetooth > Wifi)  
   The PCB should probably have the need for an (integrated) SD card.  
   This would also allow for a storage of sound clips.
5. The capacitive touch buttons are located on the inside of the shell.

# Extra Remarks

1. The current project is based on a Seeeduino/Arduino Nano but any suggestions is welcome. Arduino was chosen for the programmability.
2. Programming can be done by us if the Arduino technology is chosen. If not, when cheaper solution is provided, this document will be updated with a more extensive description of the workflow.
3. If for CE approval a hardware ON/OFF (vs the soft ON/OFF), the please include it.
4. The project was conceptualized with Arduino and