Orca PCB requirements:

ID	Hardware
HW1	4 Piezoelectric switch with 12V backlight
HW2	Battery voltage range 44-72V
HW3	3.5in Screen. Click here for datasheet
HW4*	FOCA MAX- USB TO TTL CONVERTER BOARD
HW5*	EXPANSION BOARD FOR NEXTION DISPLAY I/O EXTENDED
HW6*	NEXTION IO ADAPTER
HW7	Battery Management System (BMS)
HW8	2 - Electric Speed Control (ESC)
HW9	Water Pump
HW10	6 - Thermistors (2 Motors - 2 ESC - 2 Battery)

* Extra boards came with the Screen

ID	Functions
F1	Long Press on the **Red** button to **Turn On**
F2	Press 2 buttons at the same time to access the Settings
F3	Navigate between settings using **Up** and **Down** Button
F4	2 Buttons for **Enter** and **Back**
F5	In settings: Driving Modes (Kids - ECO - Hyper- Test*) Eco is default
F6	In settings: One hand mode **On/Off** (Off by default and not an option in kids mode)
F7	In settings: Board Run Time

F8	Max Speed Level should be determined before **RUN**
F9	Pump runs automatically after a certain temp. **TBD**

*Test Mode: no control over it and pump works with the motors.

- Speed Levels:

The product should have multiple speed levels that optimizes the power consumption of the batteries that gets the maximum performance of the engines that best matches the torque generated from the engines with the speed level needed. This feature should help in maximizing the efficiency of the batteries and thrusters and helps in reducing their lifetime. The speed level should appear on the screen.

Speed levels could be achieved by dividing the motor thrust range into 4 or 5 levels TBD

- Main Screen:

  1-Speed Level

  2-Battery Percentage and Expected remaining time.

  3-Driving Mode / One hand mode on or off

  4- Motors Temp.

  5- Charger connected

- Warning windows:
  1- When ESC temp increases (Pump should works if it failed then warning message should appear)
  2- When Motors temp increases (Temp. TBD)
  3- When Battery temp increases (Temp. TBD)
  4- 10 Mins remain before charging

- Operation modes:

    1. Kids mode: this mood allows kids to ride the board with a limited low speed the user can reach which is also saving the power consumption that makes the user use the board up to 1 hour.

    2. ECO mode: this mood allows the user to use the board for maximum 45 mins with moderate and limited speed level.

    3. Hyper mode: this mood allows the user to reach the maximum speed the engine can provide with no limits, but with a high rate of power consumption which makes the user use the board for less than 45 minutes.

- **Features**:

- Data logger:
  The Device should record in tables the following:
  1- Date/Time
  2- Status of all the settings (One Hand, Driving mode…)
  3- Status of buttons pressed
  4-Current and voltage with time.
  5- any Warning messages.
    - Data might be stored on internal SD

- Connectivity:
  The ability to access the data, modify and update the board circuit.
  Connection type could wired or wireless (Bluetooth)

- Temp Increase:
  In case any temp increases at anymode the device should reduce gradually the current until cooldown.
  In case of battery temp increase the BMS should automatically turn off the power. A warrining should appear and current must be limited.

- The Engine runs when pressing right and left button while in main screen at the same time
- Engines must stop immediately if one of the buttons at any hand released
- At one hand mode engine run using the green button and speed up and down using the other hand buttons.
- One of the 4 buttons will be a safety shut down.

Please Check this video of a similar product