



Our Design, Your Success!

CUSTOM ELECTRONIC
PRODUCT
DEVELOPMENT

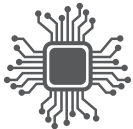
NeuronicWorks Inc. is a Toronto-based custom electronic product design company that specializes in Hardware, Firmware, Software development, Industrial and Mechanical design.

NeuronicWorks is a multi-disciplinary design house in the heart of Canada's leading tech community. We focus our efforts on helping companies develop innovative engineering solutions for their businesses, and developing new products that reflect the realities and future of technological progress.

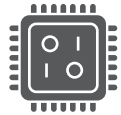
Established in 2009 in Toronto by a couple of visionary engineers, Simona and Titu Botos, NeuronicWorks initially focused on custom electronics and software development. Over the years the company grew into a powerful design house with a diverse team of over 50 designers and engineers, with a wide range of expertise in innovative technologies, design and product development. We work-on all phases of product development, from initial concept design to manufacturing and certification.

Our broad experience in electronic product design and software development across a wide-variety of industries gives us confidence to get the job done for a project of any complexity.

CUSTOM ELECTRONIC PRODUCT DEVELOPMENT



hardware design



firmware design



software design



web and app design



ux/ui design



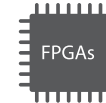
testing support



certification support



industrial design



FPGA design



mechanical design



graphic design



prototyping



manufacturing support

A1 CIRCULATOR



overview

With expertise in fluid flow, heat transfer and demand-based control our client leads the fluid systems industry for industrial heating and cooling by providing the most energy efficient and cost-effective solutions to building professionals and owners around the globe.



project scope

We have developed for our client a family of fluid circulators, that are capable of performing in various modes. For instance, constant pressure, constant flow, proportional flow, adaptive and self-optimized operation based on previous pump data and sophisticated algorithms like sensor-less reverse mapping for pump control. Multiple control option including patented auto mode which adjusts the speed to match the flow demand.



A1 circulator designed by NeuronicWorks

version A1:

Build with Renesas highly secure temper-proof controller. System features v clog/lock detection, dry-pipe detection and fail-safe mode for efficient and safe operation.

Interface: UART, Analog/Digital Input, 8-Segment Displays, Button Input.



A1 circulator



A1 circulator installed

A4 CIRCULATOR



project scope

For the circulators projects our team developed industrial grade hardware and optimized C based firmware. We have also helped with the industrial design of the A4 circulator and we supported the mechanical design.

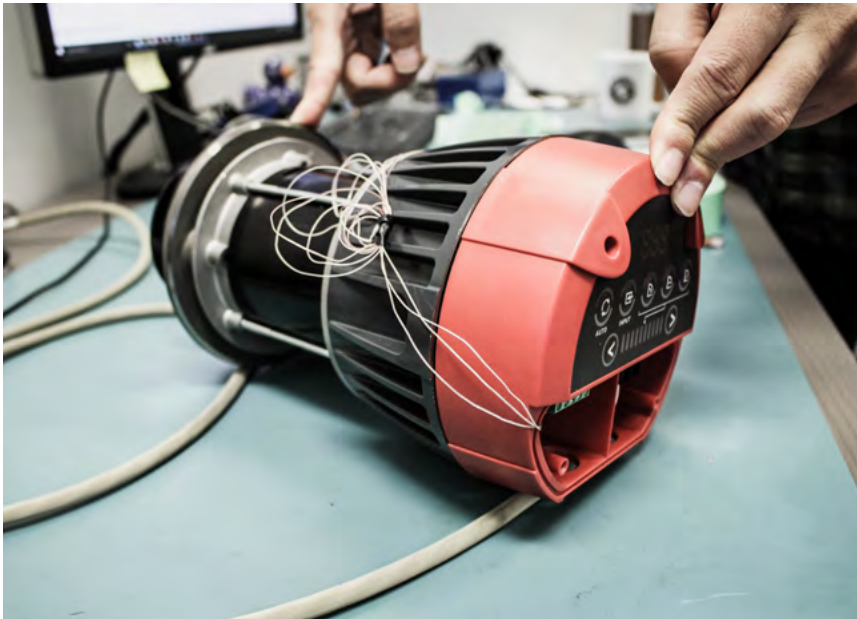


version A4:

Modern based controller which provides faster computation power for better controller response. The circular advances the features in A1 functionality by providing more modes of operation and in-field firmware upgrade for maintenance. Interface: UART, Analog/Digital Input, 8-Segment Displays, Button Input



A4 circulator 3D rendering



A4 circulator design progress



A4 circulator testing



design envelope pump controller

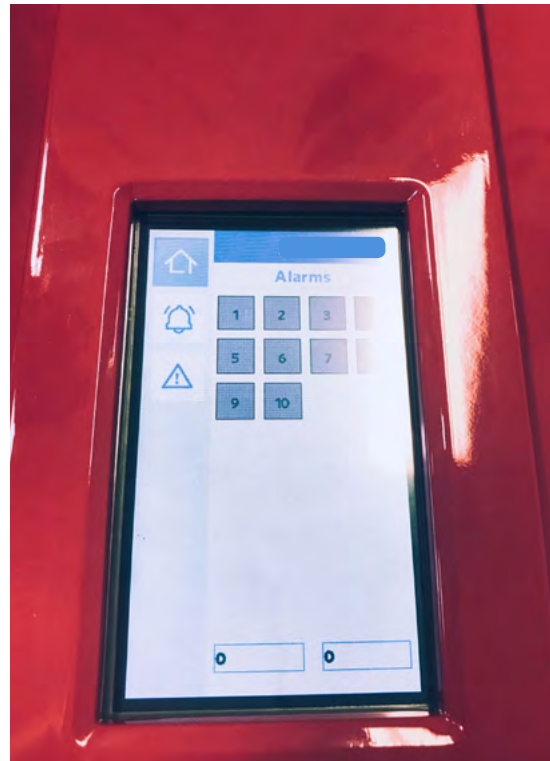
One of the most advanced circular control system, which enhances A1/A4 features with touch LCD, customizable system setup, scheduling and auto operation. Build with advanced micro -controller the device provides Wi-Fi and Ethernet connectivity for remote monitoring, integration with building automation system (BACnet), building pump network in-between themselves for tandem & failsafe operation and allow automatic system upgrade securely. The controller also hosts web pages to view device information securely with multiple layers of user access control.



Interface: LCD, Resistive touch, Ethernet, WiFi, RS485 (UART), SPI



Pump controller with resistive touch screen



Pump controller with resistive touch screen

CONTACT

our
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design,
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success!
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hardware design | firmware design|
software design | web and app design|
ux/ui design| graphic design|
industrial design | mechanical design|
prototyping| manufacturing support|
testing and certification support|

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