

Company Background:

Company Profile

- ▲ Arichell Technologies, Inc., a Massachusetts-based corporation, designs, develops, manufactures and markets low-cost, low-power, high quality hydraulic/pneumatic control solutions that incorporate the company's proprietary technologies in the areas of electro-magnetic, hydraulic, sensory and electronic control.

Research and Development

- ▲ Arichell has assembled a world class development team consisting of scientists, engineers and technicians with the combined technological experience of over 150 years in the areas of hydraulic/pneumatic valve design, low-power electro-magnetic actuators, sensory technology and low-power electronic controls. In support of these technologies as it relates to the design and commercialization of final products, the company's technical base includes expertise in mechanical design of small complex parts, design of mechanical parts for mass production including injection molding and stamping, embedded micro-controller based designs with low-power consumption circuits, analog/digital control/communication architectures, RF communication, electro-optics and ultrasonic sensor design. Arichell maintains a strong patent position in a number of important technologies. The company currently holds in excess of thirty (30) patents in thirty (30) countries.

Representative Products/Key Technologies:

High Efficiency Valves

- Compatibility with Multiple Regulatory Standards
- Self-Cleaning Piloted Mechanism
- A Range of Hydraulic Valve Sizes Operated by a Uniform Controller Covering a Wide Flow Range (0-100+ liters/minute)
- Pneumatic/Hydraulic Pilot Valve Arrangements
- Wide Range of Operating Pressures (5-150 psi)
- Piston and Diaphragm Valve Architecture Offerings

Electro-Magnetic Actuators

- Unique, Bi-Stable Electro-Magnetic Design
- Extreme Low-Energy Consumption Design for Use in Battery Applications
- Suitable for Operation Over Wide Pressure Ranges
- Employs an Unique Isolation Scheme that Enables Operation with Corrosive Media and the Presence of Solids in Suspension
- Compatibility with Multiple Regulatory Standards
- Proprietary Sensory Positioning Feedback Arrangement Enabling Media Pressure Measurement and Validation of Actuator Functionality
- High Reliability

Sensory

- Active IR Sensory Arrangement Coupled with Multiple Field of View Lenses, Automatic Gain Control and Fiber Optic Sensory Transmission
- Low-Power Passive Optical Sensor Methodology Employing Ambient Light that is Insensitive to Target Color/Texture Capable of Detecting Target Presence, Motion and Direction of Motion (Non PIR Based)
- High Resolution Ultrasonic Positioning Sensing Technology
- Non-Sensor Based Methodology for Measurement of Fluid Media Pressure
- Low-Cost Main Valve Functionality Verification Sensory Arrangement
- Capacitance Based Human Touch Detection
- Passive Acoustical Activity Level/Type Sensory Technology

Communication

- Wireless RF Signal and Bi-Directional Communication Arrangements
- Optical Non-Contact Bi-Directional Communication Arrangements
- User Notification Via Visible and/or Audible Means

Electronic Control

- 8-Bit Micro-Controller Based Architecture with Multiple Sensory Outputs
- Low-Power Design with Built-In Automatic Power Management Algorithms
- High Efficiency Step-Up Step-Down DC/DC Voltage Control
- Performance Tracking/Data Storage
- Self-Diagnostic Fault Detection Mechanism

System Development/Design:

Sensing

- Ultrasound (20kHz – 500 kHz)
- Active Infrared
- Passive Optical
- Pressure
- Temperature
- Oxygen Concentration Levels
- Non-Contact Liquid/Solid Level (Ultrasonic)
- Contact Level Measurement (Torsional Wave Guides)
- Gas Flow Measurement (Pitot Tube Technology)
- Capacitance/Touch Detection
- Fluid Conductivity

Electronic Design

- Analog
- Digital
- RF Micro-Controller Based Design
- PCB Design/Layout
- Micro-Controller Based Architectures
- Embedded System Firmware
- Adaptive Analog Controlled Systems
- Adaptive Digital Controlled Systems

Mechanical Design

- Liquid/Gas Pilot Based Valving
- Plastic Injection Molded and Stamped Parts
- Pneumatic Regulator Design
- Hydraulic Valve Design
- Hydraulic Amplifier Design

Electro-Mechanical Designs

- Latching Solenoids (Bi-Stable)
- Positioning Feedback Sensory Arrangements
- Media Isolated Bi-Stable Actuator

Manufacturing Capabilities:

Equipment/Capabilities

- Fully Automated Electronic Circuit Assembly (Multiple SMT Machines)
- Fully Automated Electronic Circuit Coating System
- Automated Control Circuit Parametric/Functional Testing
- Automated Operator Assembly Equipment
- Mechanical/Electro-Mechanical Assembly
- Optical Assembly and Testing (Fiber Optic/Lensing/Mirrors)

Quality

- ISO 9001: 2000 Certified