

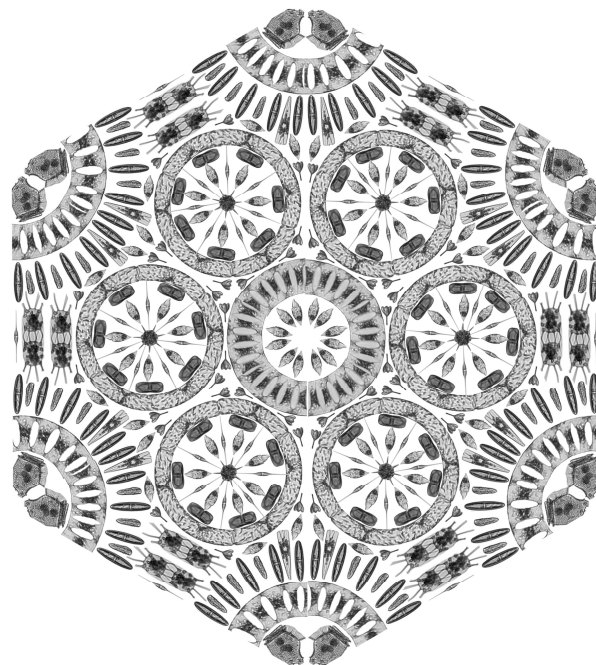


2022 GlobalHAB Symposium

IFCB Industry Perspective

August 26, 2022

Kristineberg, Fiskebackskil, Sweden



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McLane Research Laboratories, Inc.

McLane Research Laboratories

- ❖ 22 employees
- ❖ 12 product lines
 - ❖ Profilers
 - ❖ Samplers
 - ❖ Floatation

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- McLane Research Labs. has a long history of supporting the oceanographic science community (est. 1983)



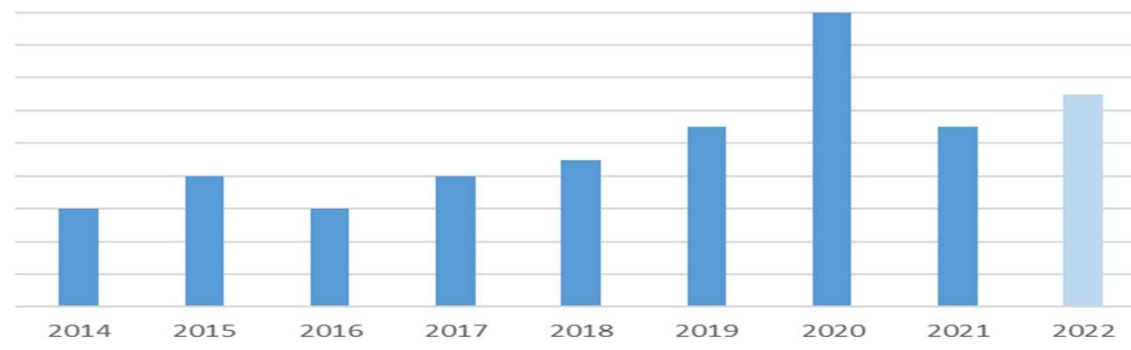
- The IFCB technology transfer and commercialization began in 2011, with the first commercial sale in 2014.



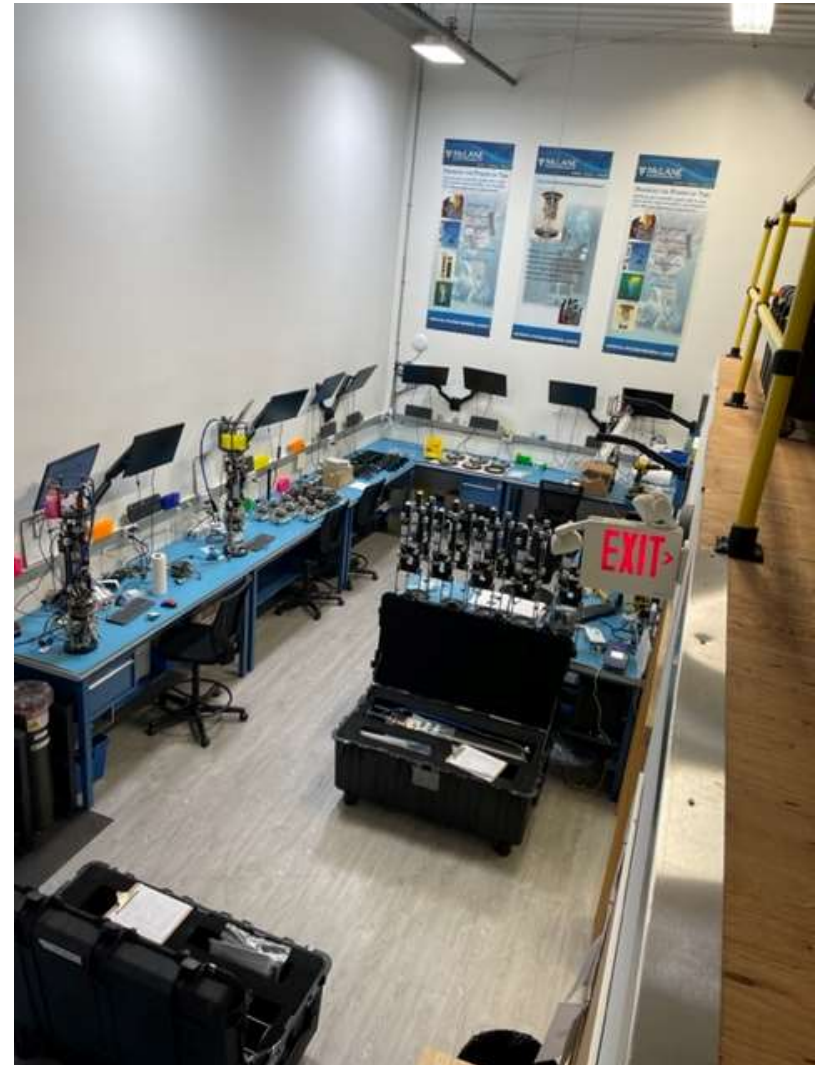


◆ IFCB Industry Perspective ◆

- Adaptation of submersible real-time particle imaging systems has shown promising growth since commercialization of IFCB
 - Expanding customer locations
 - Canada, Chile, China, Finland, France, Germany, Israel, Italy, Japan, Norway, Philippines, Scotland, Sweden, Singapore, South Korea, UK, USA
 - Expanding deployment types
 - Shore based, pier, floating dock, underway shipboard, autonomous vehicle, mooring, bottom lander
 - IFCB sales have mirrored this growing market



- Production, Development & Training Facility Upgrade
 - IFCB product line moved in July 2021 to a new facility
 - Dedicated 800 ft² space uniquely designed for IFCB production
 - Up to 12 work stations for new unit production, in service maintenance and development projects



- Supply Chain Management
 - OTS part lead times have increased significantly
 - McLane stocks most OTS parts in order to support unexpected maintenance
 - IFCB lead time has remained stable for new orders (6-8 months)



- Product Quality & Customer Support Remain Priority #1
 - McLane Engineering staff prioritizes customer support
 - One-on-one remote troubleshooting
 - Expedited parts shipment
 - Remote guidance for maintenance
 - Product quality / reliability is paramount
 - Each IFCB is built to the highest standards by McLane's Engineering staff
 - QA is integral to the IFCB build process
 - Failure mechanisms are identified & managed through close contact with vendors or internal product re-design

- Product Development / Enhancement
 - Linux OS development
 - Migrating away from Windows OS due to stability issues & development limitations
 - IFCBacquire running on Linux OS using Debian 10 with LXDE desktop environment
 - Remote communication using WebSocket API
 - IFCBacquire functional enhancements
 - Added user feedback (real-time syringe and valve status)
 - User customizable routines for unique operations
 - Ability to query & tag samples with NEMA GPS stream data
 - Ability to power external sensors / devices (CTD, AML UV Lamp)

- Product Development / Enhancement
 - Alternative SBC options for IFCB

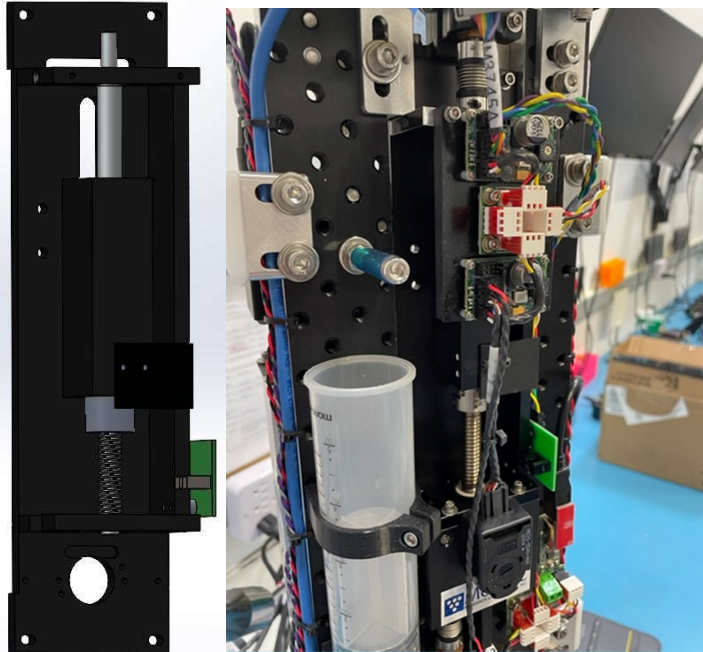


- ADLink CM3-BT4 PC-104 SBC
 - X86 architecture
 - 4-core Intel Atom Processor
 - No GPU

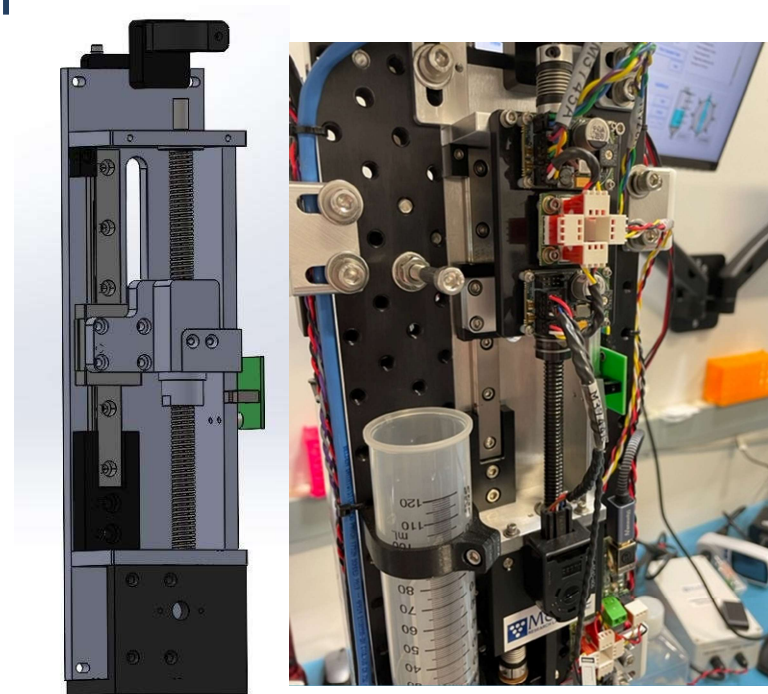


- NVIDIA Jetson Xavier AGX SBC
 - ARM architecture
 - 8-core NVIDIA Carmel Arm Processor
 - 512 NVIDIA CUDA GPU Cores
 - Edge Computing: running real-time classification onboard IFCB

- Product Development / Enhancement
 - Syringe Assembly Redesign

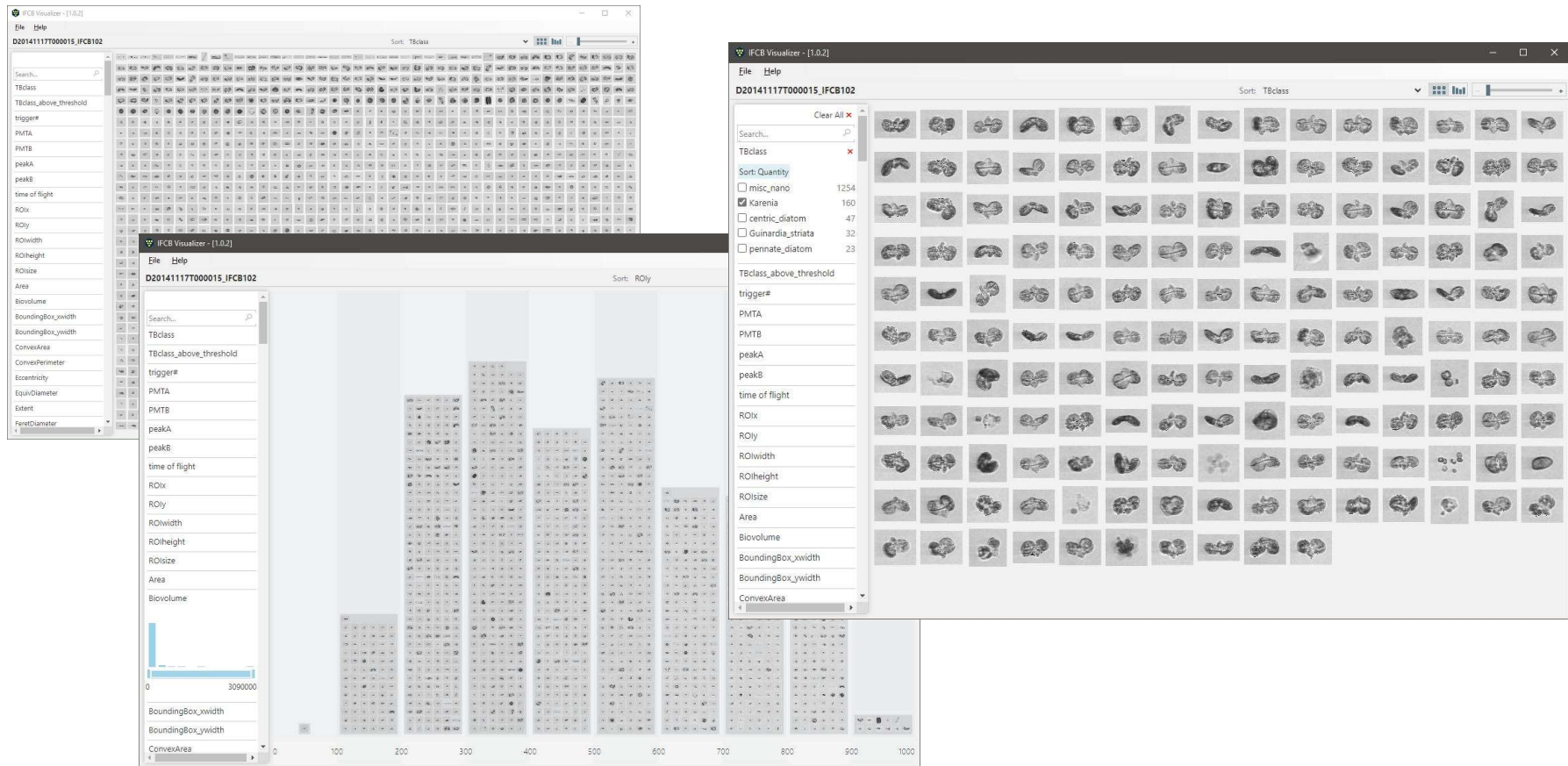


- Original syringe assembly OTS & involved secondary machining
- Discontinued by vendor



- Syringe assembly redesign made of custom machined parts
- Added robustness / rigidity with slide bearing addition

- Product Development / Enhancement
– PivotViewer





Profilers ♦ Samplers ♦ Flotation ♦

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