Margay: a practical, minimalistic, ultra-low power, and open-source environmental data logger

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Motivation - Filling a need

• Minimize cost while maximizing capability
• Specialization breeds isolation
• The fewer the better
• Quality requires precious time
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Open Source at Heart

• All software and hardware is open source and easily accessible
• Designed to support parallel and subsequent development
A Link in the Chain

• A generic option in a data management minefield
• Generates a simple CSV file, easily made compatible with any management system
A Unique Set of Skills

• Key features all included on a single board
• Supports commonly used interfaces (analog and digital)
• Simple USB user interface
Flexible Software to Meet Unique Needs

- Designed for modularity
- Not “all or nothing” solution
Agile Development

v0.0
Initial Development
-February 2018
#Deployed: ~12

v0.1
Bug Fixes
-April 2018
-Fixed general errors
-Improved SD interface
-Added I2C robustness
-Fixed USB issues
#Deployed: >100

v0.2
Feature Improvements
-(Expected) April 2019
-Improved USB power
-Increased output power
-Added lockup protection
-Added additional on board sensors
#Deployed: TBD
Specifications

• I2C Interface
• UART Interface (Added on v0.2)
• Single 18 bit Analog Interface
• Input Voltage 3.3v ~ 5v (Designed for 3 alkaline batteries)
• Sleep current ~ 2.5 uA
• Reverse polarity input protection
• Designed around powerful ATMEGA644P processor
• SD Card for onboard storage
• RGB Status Indication LEDs
Up and Running!
Questions?