Week 09

Keel Bone Chicken Project

10/24/25

This Week

Progress & Issues faced this week

- Working Data Logger on Web Interface

- Live Data Logging on Python Backend

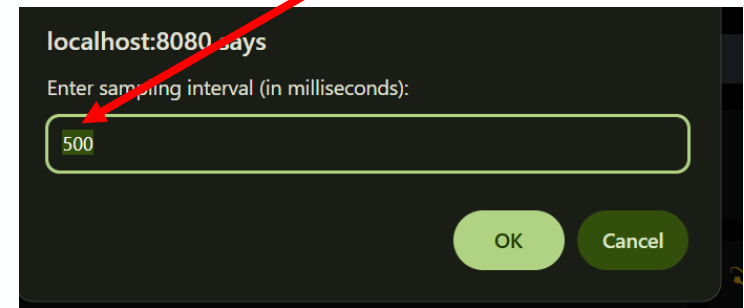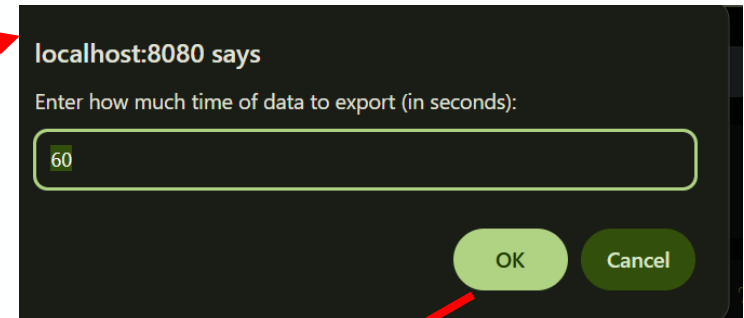- New Circuits on Schematic

- Layout Changes

Issues:

- Still running into issues fitting the battery into the circuit

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Working Data Logger on Web Interface

Introduction of Export button on UI for sensors

- Previous time + sampling interval available to extract data

- Data available with BLE only (no Wi-Fi)

Working Data Logger on Web Interface

Data Logger works on http://localhost:8080

- Able to compile data from all ports

- Data easily captured using export button on web interface

- Data logger working remotely

	timestamp	temperatu	humidity_t	pressure_	accelerom	accelerom	accelerom	gyroscope	gyroscope	gyroscope	led_R	led_G	led_B	quaternior	quaternior	quaternior	quaternior	bsec_bsec	co2_co2
1																			
2	2025-10-2	29.43	28	1000.779	897	3441	1799	64	-413	-30				0.225707	-0.44409	-0.64545	0.578917	25	50
3	2025-10-2	29.44	28	1000.802	898	3451	2106	-3	47	20				0.238159	-0.43231	-0.64148	0.587157	25	50
4	2025-10-2	29.44	28	1000.802	852	3502	1695	-5	-189	35				0.248657	-0.41858	-0.63904	0.595335	25	50
5	2025-10-2	29.46	28	1000.779	646	3489	2046	64	-821	-29				0.256286	-0.40985	-0.63464	0.602904	25	50
6	2025-10-2	29.45	28	1000.779	655	3434	2075	-76	-524	-18				0.26947	-0.39807	-0.62567	0.614317	25	50
7	2025-10-2	29.45	28	1000.802	645	3430	1719	98	-1139	-227				0.292907	-0.36395	-0.61456	0.635557	25	50
8	2025-10-2	29.44	28	1000.826	672	3440	2296	276	-1151	52				0.260131	-0.40741	-0.60724	0.630431	25	50
9	2025-10-2	29.44	28	1000.826	-38	3124	3647	-1675	4626	-1552				0.177612	-0.58063	-0.58258	0.54016	25	50
10	2025-10-2	29.43	28	1000.802	1845	3736	83	-1982	7519	-17				0.163818	-0.59912	-0.61889	0.480712	25	50
11	2025-10-2	29.43	28	1000.826	457	3209	-2346	4066	-5675	1714				0.301147	-0.37537	-0.64032	0.59857	25	50
12	2025-10-2	29.42	28	1000.826	-1261	3149	3844	1642	-8413	534				0.34027	-0.31354	-0.61535	0.63806	25	50
13	2025-10-2	29.41	28	1000.826	-1982	3422	4711	-598	3301	-1331				0.117981	-0.66833	-0.59033	0.436827	25	50
14	2025-10-2	29.41	29	1000.802	2991	3480	-3422	-219	716	803				0.232787	-0.49023	-0.64612	0.53662	25	50
15	2025-10-2	29.41	29	1000.826	-934	3004	2072	2870	-12329	1866				0.371703	-0.30847	-0.61078	0.627318	25	50
16	2025-10-2	29.4	29	1000.826	-1026	3754	3772	542	-2062	-36				0.334594	-0.34741	-0.61346	0.625181	25	50
17	2025-10-2	29.39	29	1000.802	-1843	3541	4672	-1217	7018	-1440				0.143493	-0.63611	-0.59564	0.468932	25	50
18	2025-10-2	29.39	29	1000.802	1925	2990	-1951	-3222	9453	-543				0.231262	-0.55224	-0.643	0.477416	25	50
19	2025-10-2	29.39	29	1000.802	-1367	2779	410	5003	-11777	2880				0.372436	-0.34497	-0.63336	0.583983	25	50
20	2025-10-2	29.39	29	1000.802	-1640	3355	3561	1277	-3636	357				0.363524	-0.34259	-0.61853	0.606383	25	50
21	2025-10-2	29.39	29	1000.826	-1779	3540	4028	-778	2248	-1984				0.279784	-0.50317	-0.58746	0.568602	25	50
22	2025-10-2	29.38	29	1000.802	581	2866	1319	-4275	8045	-2812				0.177856	-0.68994	-0.55469	0.429564	25	50
23	2025-10-2	29.37	29	1000.802	2411	3966	-2949	-624	1652	278				0.42932	-0.37311	-0.56213	0.60034	25	50

Live Data Logging on Python Backend
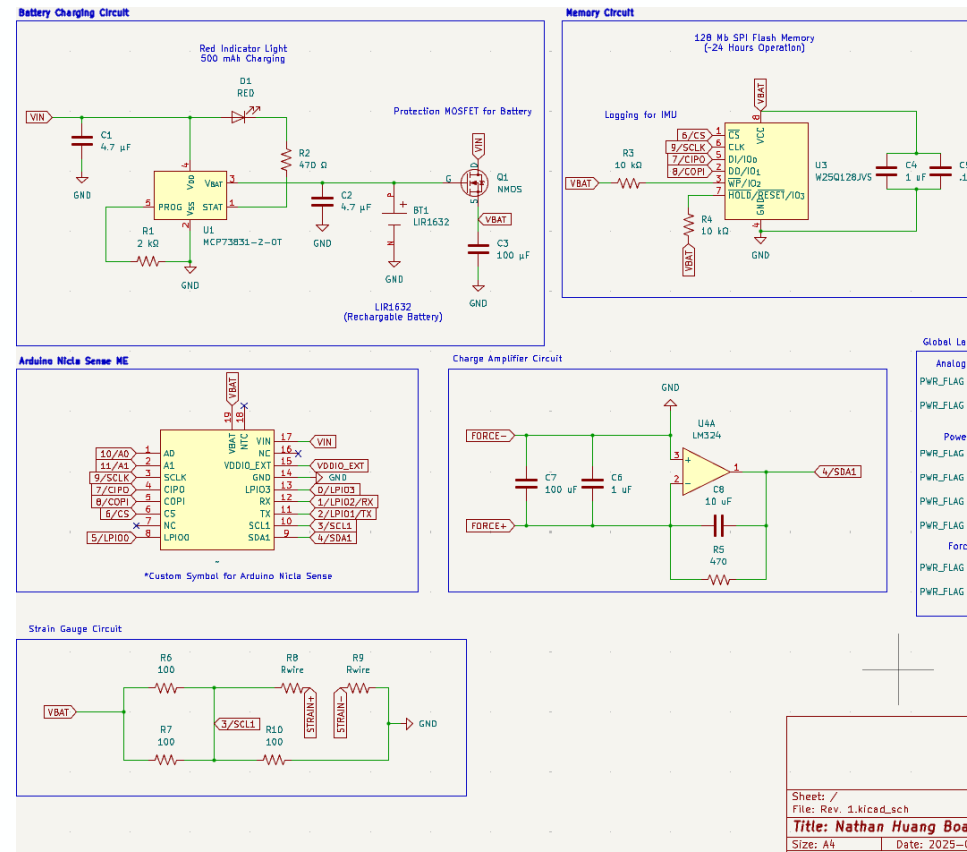
Program Arduino → Run Backend → See live data recorded

- Live demonstration below:

New Circuits on Schematic
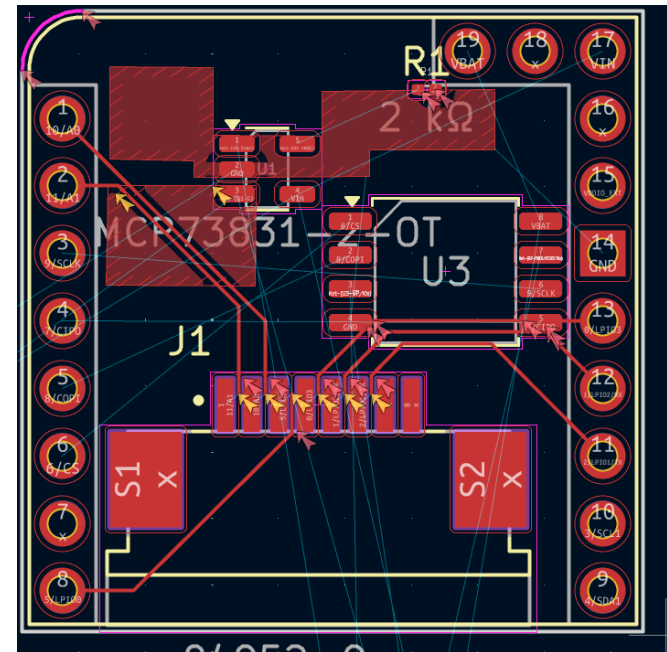
Force and Strain (Last Two Sensors)

- Area on SoC might be an issue in the figure:

- Force Sensor (Charge Amplifier)
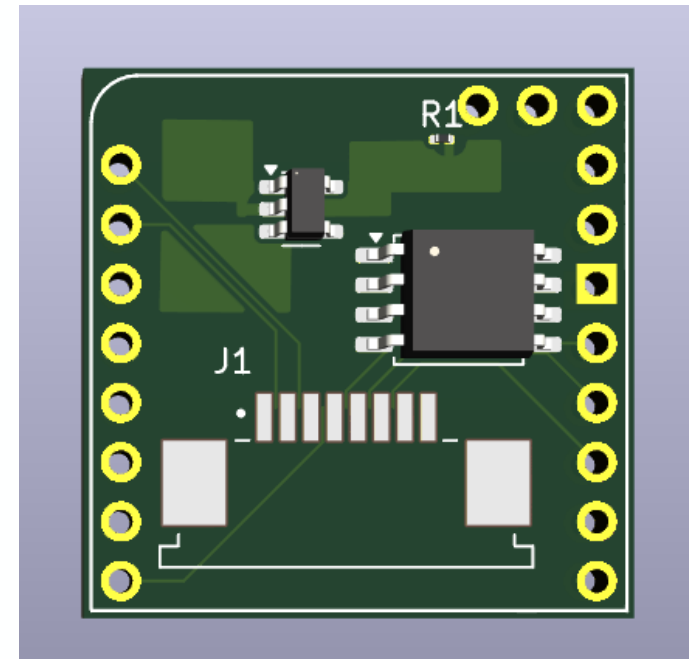
- Strain Sensor (Wheatstone Bridge)

Layout Changes

Introduction of Ribbon Cable

- BOM being generated for PCBA

- Ribbon cable occupies ~20% of area
  - Could lead to a future issue

	A	B	C	D	E	F	G
1	Designato	Footprint	Quantity	Value	LCSC Part #		
2	BT1	BAT_504	1	LIR1632			
3	C1, C2	201	2	4.7 µF			
4	C3	201	1	100 µF			
5	C4	201	1	1 uF			
6	C5	201	1	.1 uF			
7	D1	201	1	RED			
8	J1	FFC_8495:	1	84952-8			
9	Q1	NMOS_DM	1	NMOS			
10	R1	201	1	2 kΩ			
11	R2	201	1	470 Ω			
12	R3, R4	201	2	10 kΩ			
13	U1	SOT-23-5	1	MCP73831-2-OT			
14	U2	Arduino_N	1	~			
15	U3	SOIC-8_5.:	1	W25Q128JVS			
16							
17							

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Next Week

Blockers & Summary of next week's work

- Go to the Agriculture Farm; see what testing conditions are available
  - Solar Power
  - RFID Charging
  - Idle state for PCB?

- Take photos of agriculture environment

Blockers:

- Battery constraints
  - Need to find alternative ways to charge the device

- Time constraints
  - Need to see if ~10 to 25-hour operating range will actually be feasible

- Area constraints
  - Need to see if all the circuitry can be optimized on the circuit without serious routing/power issues

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Thank You

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