

# *Week 10*

Keel Bone Chicken Project

Date



College of Engineering

# ***This Week***

## Progress this week

- CSV Script for Data
- Visit to Agriculture Farm
- Modifications to Battery System

# CSV Script for Data

Original .CSV file from last week:

1	timestamp	temperature	humidity	pressure	accelerom	accelerom	accelerom	gyroscope	gyroscope	gyroscope	led_R	led_G	led_B	quaternion	quaternion	quaternion	quaternion	bsec_bsec	co2_co2
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

# CSV Script for Data

Able to extract data for longer quantities

- Longer periods than available on the WebBLE interface
- Run and analyze data for 24+ hrs
- Run Python script below.

```
Software > data_plotter.py > [x] textbox
52 ax.grid(True, color="#333333", linestyle="--", linewidth=0.5)
53 ax.tick_params(colors="white")
54 for spine in ax.spines.values():
55     spine.set_color("white")
56 ax.yaxis.label.set_color("white")
57
58 # Slider for time navigation
59 slider_ax = plt.axes([0.1, 0.08, 0.65, 0.03], facecolor="#222222")
60 slider = Slider(slider_ax, "Time Center (s)", valmin=t_min, valmax=t_max, valinit=t_max, color="#888888")
61
62 # Text box for changing window size
63 textbox_ax = plt.axes([0.8, 0.08, 0.12, 0.04], facecolor="#111111")
64 textbox = TextBox(textbox_ax, "", initial="30", color="#222222", hovercolor="#444444")
65 textbox.text_disp.set_color("white")
66 textbox.label.set_color("white")
67
68 # Default time window
69 WINDOW = 30.0
70
71 def update_plot(center):
72     global WINDOW
73     half = WINDOW / 2.0
74     start = center - half
75     end = center + half
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100
```

OUTPUT TERMINAL

PS C:\Users\natha\School\GRA\_Polytechnic\Biomedical\_Device\_PCB\Software> python data\_plotter.py

powershell  
python3.13

# *CSV Script for Data*

Generates the following Matplotlib file

- Sliding window for time analysis
- All plots (Strain, Force, Temperature, Gyroscope) can be generated

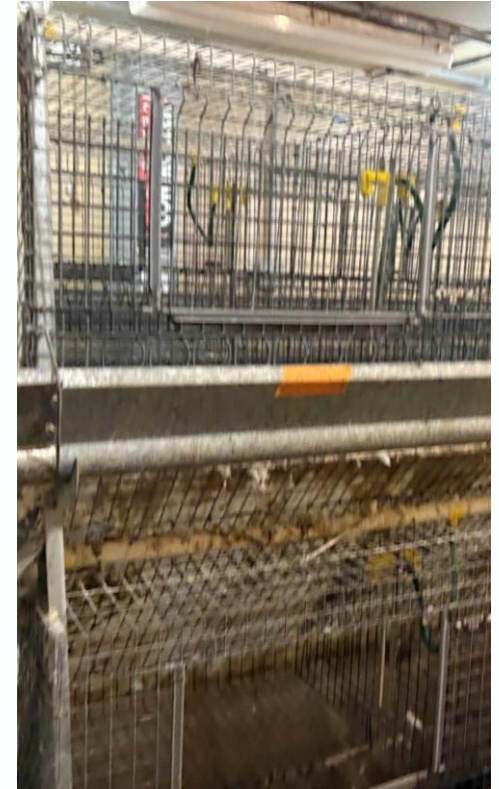
# *Visit to Agriculture Farm*

## Understanding of testing conditions for chickens

- Cages arranged in rows
  - 1, 2, 3 rows for testing



3-Tier Testing System

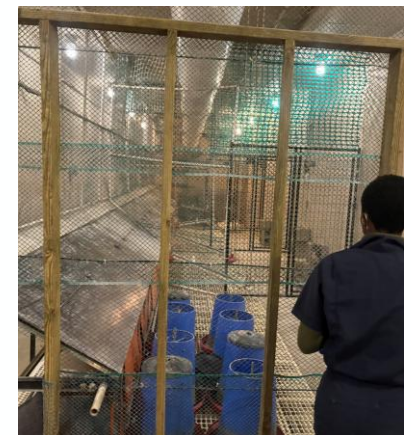
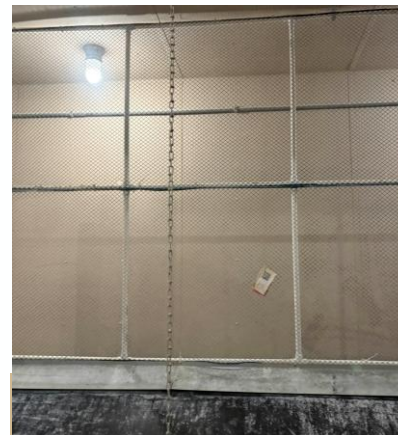


Approximate Volume

# Visit to Agriculture Farm

## Modifications to Battery System

- Very little capacity for Solar charging (artificial light)
- Small space for RFID charging with remote power near wall?
- Need to find alternative solution within testing constraints, or larger battery is needed



# *Next Week*

## Blockers & Next Week's Work

- Analysis of Solar/RFID range charging
- Verify Charge amplifier circuit
- Obtain testing data from agriculture department
  - Train agriculture representative on how to obtain data

### Blockers:

- Thinking of alternatives to supply energy to the device



# *Thank You*

Purdue Polytechnic Institute



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