

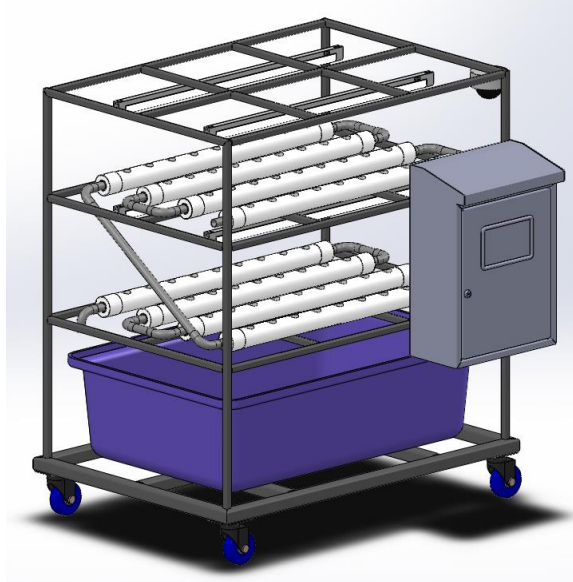
APPENDIX A – DESIGN

Figure A.1 Isometric perspectives of the design

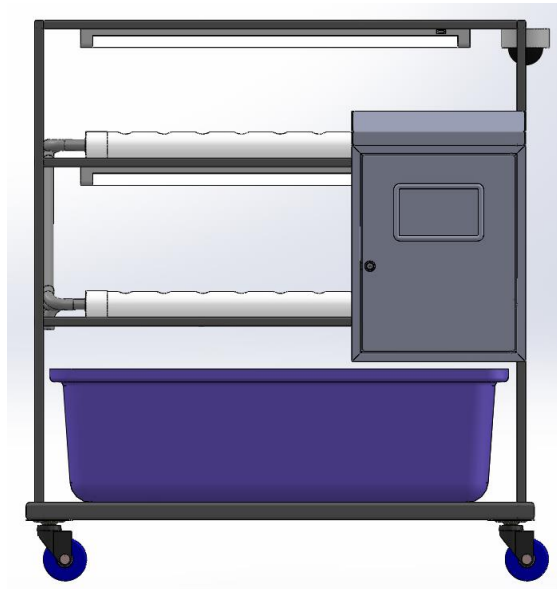


Figure A.2 Front perspectives of the design

APPENDIX B – PROTOTYPE**Figure B.1** Finished prototype

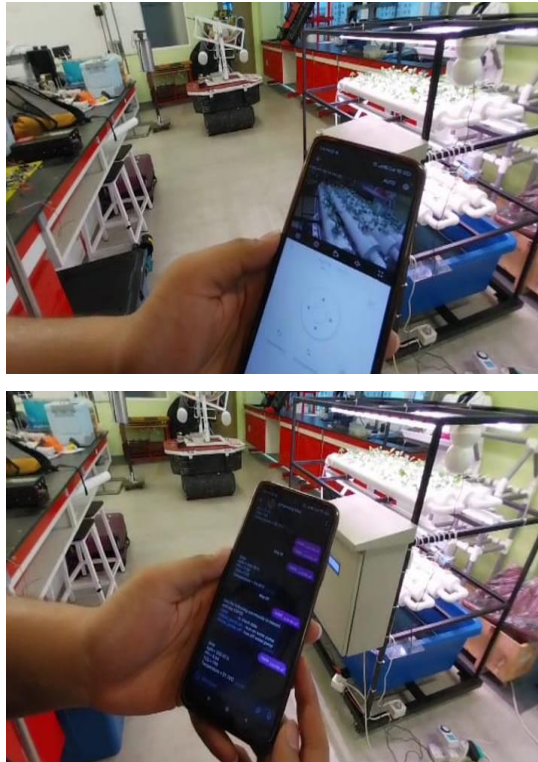


Figure B.2 Monitoring Tapo and Telegram



Figure B.3 Meter sensor data retrieval



Figure B.4 Indoor sensor data retrieval



Figure B.5 Outdoor sensor data retrieval

APPENDIX C – RAW DATA

Table C.1 Bok choy plant Indoor

No.	Time (Minute)	Water Temperature (°C)	Water PPM (Part Per Million)	Water pH	Light intensity (Lux)	UV Lamp
1	5	30	66	7.43	556.74	ON
2	10	29.94	67	7.57	568.56	ON
3	15	29.94	67	7.45	561.18	ON
4	20	29.87	67	7.42	558.96	ON
5	25	29.87	67	7.28	560.07	ON
6	30	29.81	68	7.63	564.51	ON
7	35	29.75	69	7.61	557.85	ON
8	40	29.81	68	7.63	557.85	ON
9	45	29.75	68	7.58	550.07	ON
10	50	29.75	69	7.41	560.07	ON
11	55	29.69	71	7.21	515.64	ON
12	60	29.62	68	7.65	547.85	ON
13	65	29.69	69	7.52	566.74	ON
14	70	29.56	67	7.36	555.63	ON
15	75	29.62	68	7.38	558.96	ON
16	80	29.56	70	7.54	554.52	ON
17	85	29.5	71	7.27	558.96	ON
18	90	29.56	71	7.28	556.74	ON
AVERAGE		29.74	68.39	7.46	556.16	
Max		30	71	7.65	568.56	
Min		29.5	66	7.21	515.64	

Table C.2 Water spinach plant Indoor

No.	Time (Minute)	Water Temperature (°C)	Water PPM (Part Per Million)	Water pH	Light intensity (Lux)	UV Lamp
1	5	29.37	74	7.43	565.63	ON
2	10	29.37	75	7.38	558.98	ON
3	15	29.31	75	7.13	553.41	ON
4	20	29.31	75	7.35	556.74	ON
5	25	29.25	88	7.48	545.63	ON
6	30	29.25	76	7.20	564.51	ON
7	35	29.19	76	7.31	556.74	ON
8	40	29.12	76	7.23	553.41	ON
9	45	29.06	76	7.42	564.51	ON
10	50	29.12	76	7.61	568.96	ON
11	55	29.12	76	7.04	560.07	ON
12	60	29.06	77	7.52	570.07	ON
13	65	29.06	77	7.83	563.40	ON
14	70	29.06	77	7.42	567.85	ON
15	75	29.00	77	7.54	571.18	ON
16	80	28.94	76	7.29	574.51	ON
17	85	28.94	77	7.11	571.18	ON
18	90	28.94	76	7.71	564.51	ON
AVERAGE		29.14	76.67	7.39	562.85	
Max		29.37	88	7.83	574.51	
Min		28.94	74	7.04	545.63	

Table C.3 Bok choy plant Outdoor

No.	Time (Minute)	Water Temperature (°C)	Water PPM (Part Per Million)	Water pH	Light intensity (Lux)	UV Lamp
1	5	29.19	94	7.57	4796.79	OFF
2	10	29.19	93	7.34	2933.92	ON
3	15	29.12	94	7.22	2663.99	ON
4	20	29.12	92	7.42	2546.24	ON
5	25	29.06	93	6.84	1841.97	ON
6	30	29.06	93	7.45	2645.11	ON
7	35	28.94	93	7.07	3905.90	ON
8	40	28.87	95	7.15	3139.43	ON
9	45	28.81	96	6.92	2489.59	ON
10	50	28.81	94	7.30	2036.37	ON
11	55	28.81	94	7.09	1514.28	ON
12	60	28.75	94	6.98	1714.23	ON
13	65	28.69	94	6.91	1998.60	ON
14	70	28.62	95	6.87	2121.90	ON
15	75	28.62	95	7.05	2294.08	ON
16	80	28.50	94	6.96	2314.08	ON
17	85	28.56	95	7.08	2439.60	ON
18	90	28.50	94	7.23	2490.70	ON
AVERAGE		28.85	94.00	7.14	2549.27	
Max		29.19	96	7.57	4796.79	
Min		28.5	92	6.84	1514.28	

Table C.4 Water spinach plant Outdoor

No.	Time (Minute)	Water Temperature (°C)	Water PPM (Part Per Million)	Water pH	Light intensity (Lux)	UV Lamp
1	5	28.37	96	7.14	3062.78	ON
2	10	28.31	96	7.06	4032.54	OFF
3	15	28.25	96	6.88	5717.67	OFF
4	20	28.31	101	6.60	7541.66	OFF
5	25	28.31	96	6.81	8189.27	OFF
6	30	28.31	93	7.09	7750.49	OFF
7	35	28.31	95	6.90	6445.27	OFF
8	40	28.31	95	7.03	5777.65	OFF
9	45	28.31	96	7.01	6426.38	OFF
10	50	28.31	95	7.02	5429.96	OFF
11	55	28.25	95	7.06	6727.42	OFF
12	60	28.25	95	6.84	7283.94	OFF
13	65	28.25	95	7.10	5787.65	OFF
14	70	28.31	96	6.96	4853.44	OFF
15	75	28.37	94	7.27	3850.36	ON
16	80	28.31	96	6.97	4817.90	OFF
17	85	28.31	96	7.15	4581.29	OFF
18	90	28.31	95	7.38	8441.43	OFF
AVERAGE		28.30	95.61	7.02	5928.73	
Max		28.37	101	7.38	8441.43	
Min		28.25	93	6.6	3062.78	