# **JAMZ Climate Sensor: Prototype II**

Deliverable G

GNG 1103

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#### Introduction:

For this deliverable, we have started to test our components and we realized that some modifications and extra components must be added to our previous prototype. Based on our pitch presentation, we realized that JAMZ will be using a styrofoam box with a volume of 1ft<sup>3</sup>, so for our physical prototype we will need to change the box used into something resembling JAMZ's delivery box. Furthemore, JAMZ expressed their need for waterproof casing for the add-ons to increase durability which will be addressed. All of this has been put into consideration while improving upon and testing our prototype.

### **Physical Prototype & Code:**

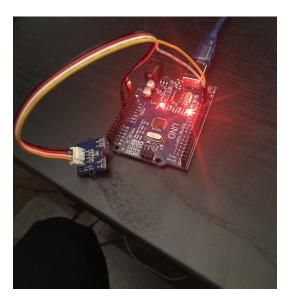


Figure 1. Trial 1 of Arduino and Sensor Testing

Figure 1 shows the wiring connection between the sensor (bottom left of the picture) and the Arduino. The wires connected properly and no errors were brought up regarding the connectivity of the wires.

1         1           19:30:16.346         > Temperature: 21.25°C         Humidity: 33.454           19:30:16.346         > Temperature: 21.26°C         Humidity: 33.454           19:30:16.346         > Temperature: 21.26°C         Humidity: 33.454           19:30:16.346         > Temperature: 21.26°C         Humidity: 33.454           19:30:17.463         > Temperature: 21.26°C         Humidity: 33.454           19:30:19.570         > Temperature: 21.26°C         Humidity: 33.454           19:30:19.571         > Temperature: 21.27°C         Humidity: 33.454           19:30:19.5765         > Temperature: 21.27°C         Humidity: 33.454           19:30:19.757         > Temperature: 21.27°C         Humidity: 33.454           19:30:10.757         > Temperature: 21.27°C         Humidity: 33.454           19:30:41.308         > Temperature: 21.27°C         Humidity: 33.454           19:30:44.470         > Temperature: 21.37°C         Humidity: 33.464           19:30:44.471         > Temperature: 21.37°C         Humidity: 33.464           19:30:44.461         > Pemperature: 21.37°C         Humidity: 33.464           19:30:44.461         > Pemperature: 21.37°C         Humidity: 33.464           19:30:44.461         > Pemperature: 21.37°C         Humidity: 33.464	COM3	
<pre>9:30:6.0.36 -&gt; Temperature: 21.26°C Hundity: 33.464 H3:30:6.0.36 -&gt; Temperature: 21.26°C Hundity: 33.464 H3:30:7.461 -&gt; Temperature: 21.26°C Hundity: 33.464 H3:30:7.461 -&gt; Temperature: 21.27°C Hundity: 33.264 H3:30:44.207 -&gt; Temperature: 21.27°C Hundity: 33.264 H3:30:44.129 -&gt; Temperature: 21.27°C Hundity: 33.464 H3:30:44.129 -&gt; Temperature: 21.27°C Hundity: 33.464 H3:30:44.129 -&gt; Temperature: 21.27°C Hundity: 33.464 H3:30:44.129 -&gt; Temperature: 21.22°C Hundity: 33.464 H3:30:44.410 -&gt; Temperature: 21.23°C Hundity: 33.464 H3:30:44.410 -&gt; Temperature: 21.23°C Hundity: 32.464 H3:30:45.46.43 -&gt; Temperature: 21.33°C Hundity: 23.464 H3:30:45.46.43 -&gt; Temperature: 21.33°C Hundity: 23.464 H3:30:45.46.43 -&gt; Temperature: 21.33°C Hundity: 23.464 H3:30:45.46.43 -&gt; Temperature: 21.33°C Hundity: 24.484 H3:30:45.46.43 -&gt; Temp</pre>		
<pre>19:19:19:40, 504 -&gt; Temperature: 21.26°C Bundlity: 33.464 19:00:19:001 -&gt; Temperature: 21.27°C Bundlity: 33.444 19:001 -&gt; Temperature: 21.27°C Bundlity: 22.444 19:001 -&gt; Tempe</pre>		
19:30:7.463 -> Pemperature 21.26°C Hunidity 33.449 19:30:80.70 -> Pemperature 21.27°C Hunidity 33.449 19:30:80.70 -> Pemperature 21.27°C Hunidity 33.449 19:30:80.70 -> Pemperature 21.27°C Hunidity 33.449 19:30:80.40.763 -> Pemperature 21.27°C Hunidity 33.449 19:30:80.40.763 -> Pemperature 21.27°C Hunidity 33.249 19:30:84.107 -> Pemperature 21.27°C Hunidity 33.249 19:30:84.207 -> Pemperature 21.27°C Hunidity 33.64 19:30:84.207 -> Pemperature 21.22°C Hunidity 33.64 19:30:84.207 -> Pemperature 21.22°C Hunidity 33.64 19:30:84.627 -> Pemperature 21.22°C Hunidity 33.64 19:30:84.627 -> Pemperature 21.22°C Hunidity 33.64 19:30:84.627 -> Pemperature 21.23°C Hunidity 33.64 19:30:84.627 -> Pemperature 21.23°C Hunidity 32.64 19:30:84.627 -> Pemperature 21.23°C Hunidity 22.64 19:30:84.627 -> Pemperature 21.33°C Hunidity 22.64 19:30:84.627 -> Pemperature 21.33°C Hunidity 22.64 19:30:80.107 -> Pemperature 21.31°C Hunidity 22.64 19:30:80.107 -> Pemperature 21.31°C Hunidity 22.64 19:30:80.107 -> Pemperature 21.31°C Hunidity 22.64 19:30:80.208 -> Pemperature 21.31°C Hunidity 22.64 19		
13:19:19:001 -> Pemperature: 21.27°C Bundlity: 33.414 33:20:20.57° Pemperature: 21.26°C Bundlity: 33.424 33:20:20.57° Pemperature: 21.26°C Bundlity: 33.424 33:20:20.57° Pemperature: 21.26°C Bundlity: 33.244 33:20:20.57° Pemperature: 21.26°C Bundlity: 33.244 33:20:20.76° Pemperature: 21.27°C Bundlity: 33.246 33:20:20.76° Pemperature: 21.27°C Bundlity: 33.266 33:20:20.77° Pemperature: 21.27°C Bundlity: 33.266 33:20:20.77°C Pemperature: 21.27°C Bundlity: 33.266 33:20:20.77°C Pemperature: 21.27°C Bundlity: 33.276 33:20:20.77°C Pemperature: 21.27°C Bundlity: 23.266 33:20:20.77°C Pemperature: 21.27°C Bundlity: 23.268 33:30:20.20°C Pemperature: 21.37°C Bundli		
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13 20:59, 50 → Pemperature: 21.27°C Bunidity: 33.244 33 20:59, 50 → Pemperature: 21.28°C Bunidity: 33.244 33 20:49, 67 → Pemperature: 21.28°C Bunidity: 33.244 33 20:42, 597 → Temperature: 21.21°C Bunidity: 33.244 33 20:44, 107 → Pemperature: 21.21°C Bunidity: 33.244 33 20:44, 249 → Pemperature: 21.21°C Bunidity: 33.244 33 20:44, 249 → Pemperature: 21.21°C Bunidity: 33.244 33 20:44, 249 → Pemperature: 21.21°C Bunidity: 33.244 35 30:44, 249 → Pemperature: 21.21°C Bunidity: 33.244 35 30:44, 249 → Pemperature: 21.21°C Bunidity: 33.244 35 30:44, 249 → Pemperature: 21.21°C Bunidity: 32.244 35 30:44, 249 → Pemperature: 21.21°C Bunidity: 32.244 35 30:44, 249 → Pemperature: 21.21°C Bunidity: 32.244 35 30:45, 95 → Pemperature: 21.31°C Bunidity: 32.245 35 30:45, 95 → Pemperature: 2		
11:32:30.65. > Pemperature: 11:28°C Handidty: 33.264 13:36:40.20.763 > Pemperature: 11:28°C Handidty: 33.244 13:36:40.763 > Pemperature: 11:28°C Handidty: 33.244 13:36:41.379 > Pemperature: 11:28°C Handidty: 33.244 13:36:41.079 > Pemperature: 11:28°C Handidty: 33.244 13:36:41.079 > Pemperature: 11:28°C Handidty: 33.244 13:36:42.407 > Pemperature: 11:28°C Handidty: 33.244 13:36:42.407 > Pemperature: 11:28°C Handidty: 33.244 13:36:42.407 > Pemperature: 11:21°C Handidty: 33.044 13:36:44.112 > Pemperature: 21:21°C Handidty: 33.044 13:36:44.242 > Pemperature: 21:21°C Handidty: 33.044 13:36:44.242 > Pemperature: 21:22°C Handidty: 33.044 13:36:36:45.24 > Pemperature: 21:23°C Handidty: 33.044 13:36:36:45.24 > Pemperature: 21:32°C Handidty: 32.644 13:36:36:45.24 > Pemperature: 21:32°C Handidty: 32.644 13:36:36:45.24 > Pemperature: 21:33°C Handidty: 32.644 13:36:3		
1:31:40.203 -> Temperature: 11.28°C Hundity: 33.244 131:36:40.73.5 "Pemperature: 11.28°C Hundity: 33.244 131:36:40.73.5 "Pemperature: 11.28°C Hundity: 33.244 131:36:41.73.9 "Pemperature: 11.28°C Hundity: 33.244 131:36:41.79.7 "Pemperature: 11.27°C Hundity: 33.744 131:36:41.79.7 "Pemperature: 11.37°C Hundity: 33.744 131:36:41.79.7 "Pemperature: 11.37°C Hundity: 33.744 131:36:41.79.7 "Pemperature: 11.37°C Hundity: 33.744 131:36:41.79.7 "Pemperature: 11.37°C Hundity: 33.744 131:36:41.71.7 "Pemperature: 11.37°C Hundity: 33.744 131:36:41.755.7 "Pemperature: 11.37°C Hundity: 33.744 131:36:41.755.7 "Pemperature: 11.37°C Hundity: 33.744 131:36:41.755.7 "Pemperature: 11.37°C Hundity: 32.744 131:36:41.755.7 "Pemperature: 11.37°C Hundity: 32.744 131:36:41.757.7 "Pemperature: 11.37°C Hundity: 32.745 131:36:41.757.7 "Pemperatu		
1:13:04.0.763 -> Pemperature: 11.29°C Hundidty: 33.214 31:05:04.13.05 -> Temperature: 11.29°C Hundidty: 33.226 31:05:04.1079 -> Pemperature: 11.29°C Hundidty: 33.226 31:05:04.200 -> Pemperature: 11.20°C Hundidty: 33.108 31:05:04.200 -> Temperature: 11.21°C Hundidty: 33.008 31:05:04.200 -> Temperature: 21.20°C Hundidty: 33.008 31:05:04.000 -> Temperature: 21.20°C Hundidty: 33.008 31:05:04:05 -> Temperature: 21.20°C Hundidty: 33.008 31:05:04:05 -> Temperature: 21.20°C Hundidty: 33.008 31:05:04:05 -> Temperature: 21.20°C Hundidty: 32.058 31:05:04:05 -> Temperature: 21.20°C Hundidty: 32.058 31:05:04:05 -> Temperature: 21.30°C Hundidty: 32.058 31:05:04:05 -> Temperature: 21.30°C Hundidty: 32.058 31:05:01:05 -> Temperature: 21.30°C Hundidty: 32.058 31:05:05:05 -> Temperature: 21.30°C Hundidty: 32.058 31:05:05:05 -> Temperature: 2		
<pre>191984.1.380 → Pemperature: 11.28°C Hundity: 31.264 19184.1.380 → Pemperature: 11.28°C Hundity: 31.264 19184.2400 → Pemperature: 11.28°C Hundity: 31.284 19184.2400 → Pemperature: 11.31°C Hundity: 31.314 19184.255 → Pemperature: 11.31°C Hundity: 31.314 19184.4571 → Pemperature: 11.31°C Hundity: 31.044 19184.4671 → Pemperature: 11.31°C Hundity: 31.044 19184.4671 → Pemperature: 11.32°C Hundity: 31.044 19184.4675 → Pemperature: 21.32°C Hundity: 32.044 19184.4675 → Pemperature: 21.33°C Hundity: 32.044 19184.655 → Pemperature: 21.33°C Hundity: 32.044 19184.655 → Pemperature: 21.33°C Hundity: 32.044 19184.655 → Pemperature: 21.33°C Hundity: 32.044 19184.665 → Pemperature: 21.33°C Hundity: 22.044 19184.665</pre>		Humidity: 33.31%
19:19:44.079 -> Pemperature: 11.29°0 Bundity: 31.209 19:19:44.097 -> Pemperature: 11.29°0 Bundity: 31.109 19:19:44.097 -> Pemperature: 11.20°0 Bundity: 31.109 19:19:44.112 -> Pemperature: 11.20°0 Bundity: 31.009 19:19:44.112 -> Pemperature: 11.20°0 Bundity: 31.009 19:19:44.112 -> Pemperature: 11.20°0 Bundity: 31.009 19:19:44.226 -> Pemperature: 11.20°0 Bundity: 31.009 19:19:44.026 -> Pemperature: 11.30°0 Bundity: 31.009 19:19:44.026 -> Pemperature: 11.30°0 Bundity: 31.009 19:19:45.000 -> Pemperature: 11.30°0 Bundity: 31.009 19:19:45.000 -> Pemperature: 11.30°0 Bundity: 31.008 19:19:45.000 -> Pemperature: 11.30°0 Bundity: 32.008 19:30:45.000 -> Pemperature: 21.30°0 Bundity: 32		Humidity: 33.26%
1913842.400 → Pemperature: 11.27° Munidity: 23.184 1913842.400 → Pemperature: 21.31° Munidity: 23.134 1913842.505 → Pemperature: 21.31° Munidity: 23.134 191384.6171 → Pemperature: 21.31° Munidity: 23.064 191384.6171 → Pemperature: 21.31° Munidity: 23.064 191384.6271 → Pemperature: 21.32° Munidity: 23.064 191384.6274 → Temperature: 21.32° Munidity: 23.064 191384.6274 → Temperature: 21.22° Munidity: 23.064 191384.6274 → Temperature: 21.23° Munidity: 23.064 191384.6275 → Temperature: 21.23° Munidity: 22.964 191384.6275 → Temperature: 21.34° Munidity: 22.965 1913815.130 → Temperature: 21.35° Munidity: 22.965 1913815.130 → Temperature: 21.36° Munidity: 22.965 1913815.130 → Temperature: 21.36° Munidity: 23.965 1913815.130 → Temperature: 21.36° Munidity: 23.965 1913815.140 → Temperature: 21.37° Munidity: 24.955 1913815.140 → Temperature: 21.37° Munidity: 24.955 1913815.741 → Tem		Humidity: 33.26%
19:38:42.997 -> Temporature: 11:21° Bundidty: 31:38 19:38:42.957 -> Temporature: 21:22° Bundidty: 31:34 19:38:44.912 -> Temporature: 21:21° Bundidty: 31:04 19:38:44.912 -> Temporature: 21:21° Bundidty: 31:04 19:38:44.924 -> Temporature: 21:22° Bundidty: 31:04 19:38:44.924 -> Temporature: 21:23° Bundidty: 31:04 19:38:44.924 -> Temporature: 21:32° Bundidty: 31:04 19:38:44.924 -> Temporature: 21:32° Bundidty: 31:04 19:38:44.924 -> Temporature: 21:32° Bundidty: 31:04 19:38:44.924 -> Temporature: 21:33° Bundidty: 31:04 19:38:44.924 -> Temporature: 21:34° Bundidty: 31:04 19:38:45.93 -> Temporature: 21:34° Bundidty: 31:04 19:38:36:0.97 -> Temporature: 21:34° Bundidty: 31:04 19:38:36:0.97 -> Temporature: 21:34° Bundidty: 31:04 19:38:36:0.97 -> Temporature: 21:34° Bundidty: 32:04 19:38:36:0.97 -> Temporature: 21:34° Bundidty: 32:04 19:38:36:0.9		Humidity: 33.18%
19:38:44.112 -> 7-memorature. 21.3170 Hundlity. 32.04 19:30:44.61.7 -> 7-memorature. 21.3270 Hundlity. 33.04 19:30:45.226 -> 7-memorature. 21.3270 Hundlity. 33.04 19:30:45.226 -> 7-memorature. 21.3270 Hundlity. 33.04 19:30:45.256 -> 7-memorature. 21.3270 Hundlity. 33.04 19:30:44.100 -> 7-memorature. 21.3270 Hundlity. 33.04 19:30:44.026 -> 7-memorature. 21.3270 Hundlity. 33.04 19:30:44.026 -> 7-memorature. 21.3370 Hundlity. 33.04 19:30:45.026 -> 7-memorature. 21.3370 Hundlity. 32.054 19:30:46.039 -> 7-memorature. 21.3470 Hundlity. 32.054 19:30:450.707 -> 7-memorature. 21.370 Hundlity. 32.054 19:30:450.707 -> 7-memorature. 2		Humidity: 33.15%
15:31:44.4:01	19:38:43.555 -> Temperature: 21.32°C	Humidity: 33.13%
19:33445.226 -> Temperature 21.22°C Bunildiy 32.034 19:33457.74 -> Temperature 21.22°C Bunildiy 32.034 19:33457.55 -> Temperature 21.22°C Bunildiy 32.034 19:3347.410 -> Temperature 21.23°C Bunildiy 33.014 19:3347.62 -> Temperature 21.23°C Bunildiy 32.034 19:3347.55 -> Temperature 21.23°C Bunildiy 32.034 19:3347.55 -> Temperature 21.23°C Bunildiy 32.034 19:3345.63 -> Temperature 21.23°C Bunildiy 32.034 19:3345.63 -> Temperature 21.24°C Bunildiy 32.034 19:3345.03 -> Temperature 21.24°C Bunildiy 32.044 19:33152.08 -> Temperature 21.27°C Bunildiy 32.044 19:33152.08 -> Temperature 21.37°C Bunildiy 32.048 19:33154.62 -> Temperature 21.37°C Bunildiy 32.048 19:33154.64 -> Temperature 21.37°C Bunildiy 32.048 19:33155.74 -> Temperature 21.37°C Bunildiy 32.048 19:33155.74 -> Temperature 21.37°C Bunildiy 32.048 19:33156.76 -> Temperature 21.37°C Bunildiy 32.048 19:33156.76 -> Temperature 21.37°C Bunildiy 32.048 19:33156.76 -> Temperature 21.37°C Bunildiy 32.048 19:3356.76 -> Temperature 21.40°C Bunildiy 32.048 19:3356.76 -> Temperature 2	19:38:44.112 -> Temperature: 21.31°C	Humidity: 33.06%
19:30:44.704 → Temperature 21.32° Bundlity 32.054 19:38:46:055 → Temperature 21.32° Bundlity 33.014 19:38:46:055 → Temperature 21.32° Bundlity 33.014 19:38:47.965 → Temperature 21.33° Bundlity 32.044 19:38:47.965 → Temperature 21.33° Bundlity 32.044 19:38:47.965 → Temperature 21.34° Bundlity 32.954 19:38:40.029 → Temperature 21.44° Bundlity 32.954 19:38:40.029 → Temperature 21.35° Bundlity 32.954 19:38:50.199 → Temperature 21.35° Bundlity 32.954 19:38:51.380 → Temperature 21.37° Bundlity 32.954 19:38:51.950 → Temperature 21.37° Bundlity 32.964 19:38:51.950 → Temperature 21.37° Bundlity 32.964 19:38:51.950 → Temperature 21.37° Bundlity 32.968 19:38:51.950 → Temperature 21.37° Bundlity 32.978 19:38:50.950 → Temperature 21.37° Bundlity 32.978 19:38:50.950 → Temperature 21.47° Bundlity 32.978 19:38:50.950 → Temperature 21.47° Bundlity 32.978 19:38:50.950 → Temperature 21.40° Bundlity 32.978 19:38	19:38:44.671 -> Temperature: 21.31°C	Humidity: 33.08%
19:33:44:294 → p-supprature: 21.32°       Bundlity: 33.014         19:33:44:295 → pemperature: 21.32°       Bundlity: 32.054         19:33:44:295 → pemperature: 21.32°       Bundlity: 32.054         19:33:45:295 → pemperature: 21.34°       Bundlity: 32.054         19:33:45:295 → pemperature: 21.37°       Bundlity: 32.054		
19:30:44.055 → Temperature 21.32°       Bundlity 33.01*         19:38:47.055 → Temperature 21.33°       Bundlity 32.05*         19:38:47.055 → Temperature 21.34°       Bundlity 32.05*         19:38:47.055 → Temperature 21.34°       Bundlity 32.05*         19:38:47.055 → Temperature 21.34°       Bundlity 32.05*         19:38:46.029 → Temperature 21.35°       Bundlity 32.05*         19:38:46.029 → Temperature 21.35°       Bundlity 32.05*         19:38:50.139 → Temperature 21.35°       Bundlity 32.05*         19:38:51.200 → Temperature 21.37°       Hundlity 32.05*         19:38:51.200 → Temperature 21.37°       Hundlity 32.05*         19:38:51.200 → Temperature 21.36°       Hundlity 32.04*         19:38:51.200 → Temperature 21.36°       Hundlity 32.04*         19:38:51.200 → Temperature 21.36°       Hundlity 32.06*         19:38:51.200 → Temperature 21.37°       Hundlity 32.06*         19:38:51.400 → Temperature 21.37°       Hundlity 22.05*         19:38:51.410 → Temperature 21.37°<		
19:38:47.410 → Demperature 21:32 <sup>10</sup> Humidity 33.019 19:38:47.660 → Temperature 21:32 <sup>10</sup> Humidity 32:366 19:38:47.660 → Temperature 21:34 <sup>10</sup> Humidity 32:366 19:38:40.63 → Temperature 21:34 <sup>10</sup> Humidity 32:368 19:38:50.757 → Temperature 21:36 <sup>10</sup> Humidity 32:368 19:38:50.757 → Temperature 21:36 <sup>10</sup> Humidity 32:368 19:38:50.757 → Temperature 21:36 <sup>10</sup> Humidity 32:368 19:38:51.075 → Temperature 21:37 <sup>10</sup> Humidity 32:368 19:38:51.075 → Temperature 21:37 <sup>10</sup> Humidity 32:38 19:38:51.075 → Temperature 21:37 <sup>10</sup> Humidity 32:08 19:38:51.083 → Temperature 21:37 <sup>10</sup> Humidity 32:08 19:38:55.083 → Temperature 21:07 <sup>10</sup> Humidity 32:08 19:38:55.084 → Temperatu		
19.31847.965 -> Temperature 21.347°         Numidity 22.976           19.31841.029 -> Temperature 21.347°         Numidity 22.976           19.31841.029 -> Temperature 21.357°         Numidity 22.976           19.31841.029 -> Temperature 21.357°         Numidity 22.976           19.31841.029 -> Temperature 21.357°         Numidity 22.966           19.31851.318 -> Temperature 21.37°         Numidity 22.964           19.31851.318 -> Temperature 21.37°         Numidity 22.964           19.31851.318 -> Temperature 21.37°         Numidity 22.934           19.31851.318 -> Temperature 21.36°         Numidity 23.934           19.31851.308 -> Temperature 21.36°         Numidity 32.944           19.31851.918 -> Temperature 21.36°         Numidity 32.944           19.31851.918 -> Temperature 21.37°         Numidity 32.944           19.31851.918 -> Temperature 21.37°         Numidity 32.944           19.31854.424 -> Temperature 21.37°         Numidity 32.464           19.31854.424 -> Temperature 21.37°         Numidity 22.464           19.31854.424 -> Temperature 21.37°         Numidity 22.464           19.31854.424 -> Temperature 21.37°		
19:33:41.022 → remporture 21.44°         Bunidity 22.97%           19:33:40.023 → remporture 21.45°         Bunidity 22.93%           19:33:40.039 → remporture 21.45°         Bunidity 22.93%           19:33:40.039 → remporture 21.45°         Bunidity 22.93%           19:33:40.039 → remporture 21.45°         Bunidity 22.93%           19:33:40.079 → remporture 21.45°         Bunidity 22.96%           19:33:40.079 → remporture 21.47°         Bunidity 22.96%           19:33:40.079 → remporture 21.47°         Bunidity 22.96%           19:33:40.079 → remporture 21.47°         Bunidity 22.93%           19:33:40.079 → remporture 21.47°         Bunidity 22.93%           19:33:40.079 → remporture 21.36°         Bunidity 22.93%           19:33:40.079 → remporture 21.36°         Bunidity 22.96%           19:33:40.079 → remporture 21.37°         Bunidity 22.96%           19:33:40.079 → remporture 21.37°         Bunidity 22.96%           19:33:45.067 → remporture 21.37°         Bunidity 22.06%           19:33:45.067 → remporture 21.37°         Bunidity 22.06%           19:33:45.067 → remporture 21.37°         Bunidity 22.06%           19:33:45.068 → remporture 21.37°         Bunidity 22.06%           19:33:45.068 → remporture 21.37°         Bunidity 22.06%           19:33:45.07 → remporture 21.37°         Bunidity 22.06%		
19.3184.079 → remportature 21.34°C       Humidity 22.954         19.3184.079 → remportature 21.35°C       Humidity 22.954         19.3184.079 → remportature 21.35°C       Humidity 22.954         19.3184.079 → remportature 21.37°C       Humidity 22.954         19.3185.0719 → remportature 21.37°C       Humidity 22.954         19.3185.0719 → remportature 21.37°C       Humidity 22.954         19.3185.0710 → remportature 21.36°C       Humidity 32.934         19.3185.0710 → remportature 21.36°C       Humidity 32.934         19.3185.0710 → remportature 21.36°C       Humidity 32.948         19.3185.0710 → remportature 21.37°C       Humidity 32.948         19.3185.0710 → remportature 21.37°C       Humidity 32.948         19.3185.0710 → remportature 21.37°C       Humidity 32.468         19.3185.0741 → remportature 21.37°C       Humidity 22.458         19.3185.0741 → remportature 21.37°C       Humidity 22.458         19.3185.0741 → remportature 21.37°C       Humidity 22.458         19.3185.0741 → remportature 21.31°C       Humidity 22.458         19.3185.0741 → remportature 21.31°C       Humidity 22.458 <t< td=""><td></td><td></td></t<>		
19:30:40.43 → remperature 21.45° Bundity 22.354 19:30:50.757 → remperature 21.45° Bundity 22.354 19:30:50.757 → remperature 21.45° Bundity 22.354 19:30:51.757 → remperature 21.47° Bundity 22.354 19:30:51.757 → remperature 21.47° Bundity 22.354 19:30:52.507 → remperature 21.45° Bundity 22.354 19:30:52.507 → remperature 21.45° Bundity 22.354 19:30:52.507 → remperature 21.45° Bundity 22.364 19:30:52.507 → remperature 21.45° Bundity 22.364 19:30:52.507 → remperature 21.37° Bundity 22.364 19:30:54.507 → remperature 21.37° Bundity 22.364 19:30:54.607 → remperature 21.37° Bundity 22.364 19:30:55.508 → Remperature 21.37° Bundity 22.364 19:30:55.508 → Remperature 21.37° Bundity 22.364 19:30:55.508 → Remperature 21.37° Bundity 22.368 19:30:56.7412 → Remperature 21.40° Bundity 22.378 19:30:56.7455 → Remperature 21.40° Bundity 22.378 19:30:57.845 → Remperature 21.40° Bundity 22.378		
19.190.197         → remporature 21.37°         Humidity 22.664           19.3180.077         → remporature 21.37°         Humidity 22.374           19.3180.178         → remporature 21.37°         Humidity 22.374           19.3180.178         → remporature 21.36°         Humidity 32.344           19.3185.184         → remporature 21.36°         Humidity 32.344           19.3185.195.300         → remporature 21.37°         Humidity 32.084           19.3185.226.7         → remporature 21.37°         Humidity 32.084           19.3185.426.4         → remporature 21.37°         Humidity 32.084           19.3185.42.4         → remporature 21.37°         Humidity 22.084           19.3185.741.4         → remporature 21.37°         Humidity 22.084 </td <td></td> <td></td>		
19.38.80.737         > remporature 21.377         Humidity 22.35           19.38.81.187         > remporature 21.377         Humidity 22.35           19.38.81.075         > remporature 21.377         Humidity 22.35           19.38.81.075         > remporature 21.377         Humidity 22.35           19.38.82.0175         > remporature 21.377         Humidity 32.36           19.38.82.0175         > remporature 21.377         Humidity 32.064           19.38.82.0175         > remporature 21.377         Humidity 32.064           19.38.85.0186         > remporature 21.376         Humidity 32.064           19.38.85.0187         > remporature 21.376         Humidity 32.064           19.38.85.0187         > remporature 21.476         Humidity 32.084           19.38.85.0187         > remporature 21.476         Humidity 32.084           19.38.85.0187         > remporature 21.476         Humidity 32.084     <		
19.3.0.1.310         -> remporature: 21.3.7°         Humidity: 32.33           19.3.0.1.0.7°         > remporature: 21.3.6°         Humidity: 32.34           19.3.0.2.0.7°         Poporature: 21.3.7°         Humidity: 32.34           19.3.0.2.0.7°         Poporature: 21.3.7°         Humidity: 32.464           19.3.0.2.0.7°         Poporature: 21.3.7°         Humidity: 32.464           19.3.0.2.0.6°         - Poporature: 21.3.7°         Humidity: 32.464           19.3.0.2.4.6°         > Poporature: 21.3.7°         Humidity: 22.464           19.3.0.2.6.4.4°         > Poporature: 21.40°         Humidity: 22.454           19.3.0.2.6.4.4°         Poporature: 21.40°		
19.3852.380 → Semperature 21.37°         Humidity 32.08           19.38125.200 → Pemperature 21.37°         Humidity 32.08           19.38125.405 → Semperature 21.38°         Humidity 32.08           19.38125.405 → Semperature 21.38°         Humidity 32.08           19.38154.624 → Semperature 21.38°         Humidity 32.08           19.38154.624 → Semperature 21.38°         Humidity 32.08           19.38154.624 → Semperature 21.38°         Humidity 32.08           19.38155.741 → Semperature 21.37°         Humidity 32.08           19.38155.741 → Semperature 21.37°         Humidity 32.68           19.38155.741 → Semperature 21.37°         Humidity 32.68           19.38155.741 → Semperature 21.37°         Humidity 32.68           19.38155.741 → Semperature 21.37°         Humidity 22.68           19.38157.422 → Semperature 21.37°         Humidity 22.68           19.38157.7412 → Semperature 21.47°         Humidity 22.68           19.38157.7412 → Semperature 21.47°         Humidity 22.68           19.38157.7412 → Semperature 21.47°         Humidity 32.788		Humidity: 32.93%
19:33129, 19:0 → Pemperature 21, 37"         Hundity 32, 084           19:33129, 19:0 → Pemperature 21, 38"         Hundity 32, 064           19:33193, 067 → Pemperature 21, 38"         Hundity 32, 064           19:33193, 067 → Pemperature 21, 38"         Hundity 32, 064           19:33194, 067 → Pemperature 21, 38"         Hundity 32, 064           19:33195, 10:3 → Pemperature 21, 38"         Hundity 32, 064           19:33195, 62:40 → Pemperature 21, 39"         Hundity 32, 064           19:33195, 62:40 → Pemperature 21, 39"         Hundity 32, 064           19:33195, 62:40 → Pemperature 21, 39"         Hundity 32, 064           19:33195, 74:12 → Pemperature 21, 49"         Hundity 32, 054           19:33195, 74:12 → Pemperature 21, 49"         Hundity 32, 054           19:33195, 74:12 → Pemperature 21, 49"         Hundity 32, 054           19:33195, 74:15 → Pemperature 21, 40"         Hundity 32, 024           19:33195, 74:15 → Pemperature 21, 40"         Hundity 32, 024           19:33195, 74:5 → Pemperature 21, 40"         Hundity 32, 024           19:33195, 74:5 → Pemperature 21, 40"         Hundity 32, 024           19:33195, 74:5 → Pemperature 21, 40"         Hundity 32, 024	19:38:51.875 -> Temperature: 21.36°C	Humidity: 32.91%
19:31:03.005 → Temperature 21.37°         Hundliy 22.064           19:33:04.026 → Temperature 21.37°         Hundliy 22.085           19:33:05.026 → Temperature 21.37°         Hundliy 22.084           19:33:05.026 → Temperature 21.47°         Hundliy 22.084           19:33:05.026 → Temperature 21.47°         Hundliy 22.084           19:33:05.045 → Temperature 21.47°         Hundliy 22.084           19:30:07.072 → Temperature 21.47°         Hundliy 22.084           19:30:07.056 → Temperature 21.47°         Hundliy 22.084           19:30:07.056 → Temperature 21.47°         Hundliy 22.084           19:30:07.056 → Temperature 21.47°         Hundliy 27.078		
19:339:54,067 → Pemperature 21.38°         Hundity 22.05%           19:339:54,067 → Pemperature 21.38°         Hundity 22.05%           19:339:57,013 → Pemperature 21.38°         Hundity 22.06%           19:339:56,026 → Pemperature 21.39°         Hundity 22.06%           19:339:56,026 → Pemperature 21.39°         Hundity 22.06%           19:339:56,026 → Pemperature 21.39°         Hundity 22.06%           19:339:57,412 → Pemperature 21.40°         Hundity 22.05%           19:339:57,412 → Pemperature 21.40°         Hundity 22.05%           19:339:57,412 → Pemperature 21.40°         Hundity 22.05%           19:339:57,415 → Pemperature 21.40°         Hundity 27.07%		
19:30:154.422 → Semporature: 21.37°         Humidity: 32.444           39:30:55.741 → Temperature: 21.37°         Humidity: 32.484           19:30:155.741 → Temperature: 21.37°         Humidity: 32.484           19:30:156.741 → Temperature: 21.37°         Humidity: 32.484           19:30:156.742 → Temperature: 21.40°         Humidity: 32.684           19:30:157.412 → Temperature: 21.40°         Humidity: 32.484           19:30:157.412 → Temperature: 21.40°         Humidity: 32.484           19:30:157.415 → Temperature: 21.40°         Humidity: 32.484           19:30:157.420 → Temperature: 21.40°         Humidity: 32.484           19:30:157.420 → Temperature: 21.40°         Humidity: 32.484           19:30:157.420 → Temperature: 21.40°         Humidity: 32.484		
98:33:55.103 → Compositive 21.30 <sup>20</sup> Humidity 32.064           91:33:55.741 → Compositive 21.30 <sup>20</sup> Humidity 32.064           91:33:55.741 → Compositive 21.30 <sup>20</sup> Humidity 32.084           91:33:55.7412 → Compositive 21.40 <sup>20</sup> Humidity 32.084           91:33:55.7412 → Compositive 21.40 <sup>20</sup> Humidity 32.084           91:39:55.7412 → Compositive 21.40 <sup>20</sup> Humidity 32.084           91:39:55.7412 → Compositive 21.40 <sup>20</sup> Humidity 32.084           91:39:55.7452 → Compositive 21.40 <sup>20</sup> Humidity 32.084           91:39:55.7456 → Compositive 21.40 <sup>20</sup> Humidity 32.084           91:39:55.7456 → Compositive 21.40 <sup>20</sup> Humidity 32.084           91:39:55.7456 → Compositive 21.40 <sup>20</sup> Humidity 32.084		
13:38:55.741 → Semperature: 21.39°C         Humidity: 32.65           13:28:56.263 → Semperature: 21.39°C         Humidity: 32.65           13:28:56.854 → Semperature: 21.40°C         Humidity: 32.65           13:38:57.413 → Semperature: 21.40°C         Humidity: 32.65           13:38:57.413 → Semperature: 21.40°C         Humidity: 32.65           13:38:57.413 → Semperature: 21.40°C         Humidity: 32.65           13:38:50.465 → Semperature: 21.40°C         Humidity: 32.64           13:38:50.465 → Semperature: 21.40°C         Humidity: 32.64           13:38:50.465 → Semperature: 21.40°C         Humidity: 32.67		
19130156.20# → Supportances 21.39*         Bundity 32.83*           392856.60.40 → Supportances 21.40*         Bundity 32.63*           392856.61.40 → Supportances 21.40*         Bundity 32.63*           393857.412 → Supportances 21.40*         Bundity 32.63*           393856.40.5 → Supportances 21.40*         Bundity 32.63*           393857.412 → Supportances 21.40*         Bundity 32.63*           393857.40.5 → Supportance 21.40*         Bundity 32.63*           393857.40.5 → Supportance 21.40*         Bundity 32.63*		
19:38:56.84 → Pemperature: 21.40°C Humidity: 32.858 19:38:57.412 → Pemperature: 21.39°C Humidity: 32.858 19:38:57.452 → Pemperature: 31.40°C Humidity: 32.828 19:38:58.495 → Pemperature: 31.40°C Humidity: 32.828 19:38:58.495 → Pemperature: 21.40°C Humidity: 32.788		
19:30:57.927 → Temperature: 21.40°C Humidity: 32.828 19:30:50.485 → Temperature: 21.40°C Humidity: 32.828 19:30:50.05 → Temperature: 21.40°C Humidity: 32.798	19:38:56.854 -> Temperature: 21.40°C	Humidity: 32.85%
19:38:58.485 -> Temperature: 21.40°C Humidity: 32.825 19:38:59.045 -> Temperature: 21.40°C Humidity: 32.795		
19:38:59.045 -> Temperature: 21.40°C Humidity: 32.79%		
	The state of the s	

Figure 2. Sensor Results

Figure 2 shows accurate data retrieved from the AHT20 sensor and being printed off in the serial monitor. The values were compared with the temperature that the thermostat of the house was set to, and it matched very well.

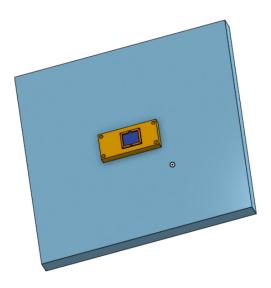
```
Current Functioning and Tested Code:
```

```
#include <Adafruit AHTX0.h>
Adafruit AHTX0 AHT;
/*
* Start with a Baud rate of 9600
*/
void setup()
{
 Serial.begin(9600);
 AHT.begin();
}
void loop()
{
 /*
 * This comment is taken from learn.adafruit.com:
  * sensors event t - This type is used to encapsulate a specific sensor reading, called
an 'event',
  * and contains a data from the sensor from a specific moment in time.
 * Create a temperature and humidity value
  */
 sensors event t humValue, tempValue;
 /*
 * getEvent: Gets the temperature as a standard sensor event
  */
 AHT.getEvent(&humValue, &tempValue);
 /*
  * Print the temperature and humidity values in one row
  * Wait 500 milliseconds or the desired amount and print the next set of values in the
next row
  */
 Serial.print("Temperature: ");
 Serial.print(tempValue.temperature);
 Serial.print("°C\t");
 Serial.print("Humidity: ");
 Serial.print(humValue.relative humidity);
 Serial.println("%");
 delay(500);
```

```
}
```

## **CAD Prototype:**

Going forward in our CAD prototype analysis, as well as comments from JAMZ, we have determined that we must consider waterproofing our designs. There are several ways to go about waterproofing... One, being altering our casing design in order to properly seal the sensor. Second, being altering the materials we want to use for the casing. We are confident in our first prototype casing's structure, so we will consider the second option in this case. In order to determine a new material we are working to find a material that matches our past standards for toughness and strength while now also being waterproof.



### Figure 3. Sensor Casing on Drone Lid

Figure 3 demonstrates the placement of the Sensor and Casing on the interior of the drone lid. The Sensor and casing will be placed in the center of the lid and inside the box, but the sensor will not touch the box directly in order to provide optimal results.

# Test Plan II:

Table 1: Climate Sensor Test Plan

Test ID	Test Objective (Why)	Description of Prototype used and of Basic Test Method (What)	Description of Results to be Recorded and how these results will be used (How)	Estimated Test duration and planned start date (When)	Analysis
(Code) proper and accurate function of code with sensor. resp relia the o sensor		Numerical and physical prototype. Test speed of data and response time reliability with the climate sensor	Plug in sensor and change the temperature and humidity of the surrounding environment \$0 (use materials we already have)	New code already tested	The untested code did not want to print the temp and hum values when first tested. We noticed the code was missing an AHT20 sensor related function. The sensor reads the hum value first then the temp value. This was very important in determining the order the values would be passed onto our variables. Once all of this was determined, the serial monitor was printing accurate and applicable data.
2 (Wire connectio n)	(Wire nothing will proto connectio come Test t		Plug wires into all other necessary components using new additions and move/shake the prototype as if to simulate a rough flight.	Proper testing will be conducted once materials are available. Prototype testing with available	With this improved system, the wires stay connected to the sensor and to the Arduino with very little chance of them falling out. With the official materials

		path and disruptions that may occur.		materials ASAP.	this small chance will become even smaller.
3 (Weather proofing)	To ensure no weather elements can enter the box at any connection points.	Physical prototype. Test the ability to withstand different weather, such as rain, from entering the delivery box or the drone.	Spray water from a bottle onto the prototype to see if any water enters. For the prototype, use rubber blades to cover any openings and surround any components within those openings (other materials might need to be used for sooner testing).	Proper testing will be conducted once materials are available. Prototype testing ASAP.	No water is able to penetrate into the box, however, the waterproofing for the actual sensor will need more work. This isn't a big issue at the moment but adding some form of waterproofing to the sensor will ensure that, if a crash where the box breaks open were to occur, the sensor would be protected from the elements.

## **Conclusion:**

In conclusion, this week our group was able to gather further information from JAMZ and our personal testing analysis to establish that our prototypes must be waterproof going forward. In regards to our physical prototype and the code, this week we were able to finally test the sensor. In order to generate a sufficient amount of useful feedback on waterproofing, we've planned to conduct further tests and research to ensure suitable waterproof casing is used. In order to do so, we created specific test plans to touch on the "why", "what", "how" and "when".

# Wrike Planning for Next Deliverable:

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rotot	ype II and Custom	er Feedback										
Cad d	esign • Ogechi A.										Weeks 🗸	
Zach	L.											
	Prepare a revise	d analysis of critio	cal components • (	Olivia C.								
nateri	al gathering/purch	asing (if still nee	ded) • Julio M.									
	Prepare analysis	of results • Mich	aela J.									
							Proto	pe III and Custor	mer Feedback			
						Add new adjustr	ments to the Auto	ad design • Oge	chi A.			
						Build physical pr	rototype #3 • Zacl	ήL.				
						Ļ		Add to the revis	sed analysis of the	critical comp	onents • Ol	ivia C.
						Add new feature	es or adjustments	to the code and t	est it • Julio M.			
						*		Prepare revised	analysis of result	s • Michaela J		