Abstract:
The goal of this project is to evaluate the recently released OS Android Things as a platform to explore Internet of Things (IoT) applications that may be difficult or impossible on other platforms. This evaluation is accomplished through the creation of a self-contained resonant image, which will eventually be networked with other resonant images and other devices (i.e., mobile phones) thus relating the project back to the IoT.

Background Info:

- **Resonant Image**: Photo or image that is turned into an ‘artifact’ meant to create a more immersive experience for an audience; places digital media back in a ‘real space’.
- **IoT**: Network of devices, machines (both mechanical and digital), and even animals that are embedded with electronics/software.
- **Coastal Voices**: A humanities initiative committed to understanding the cultural consequences of environmental changes to Louisiana’s endangered landscape.

Implementation:
The project is comprised of a prototype resonant image that puts the *Coastal Voices* interviews back in a ‘real space’, using a Raspberry Pi (flashed with Android Things) as the control center of the embedded hardware (see above). The Pi is programmed so that if someone moves somewhat close, the image will transition from State 1 to State 2 (see chart below). If the person moves close enough, state changes from State 2 to State 4 and the interview segments will begin to play. If no movement is detected for a length of time, state regresses. The brief intermission between interviews is State 3. State changes due to motion are made possible by the two PIR Motion Sensors.

<table>
<thead>
<tr>
<th>State #</th>
<th>State 1: Detecting</th>
<th>State 2: Attracting</th>
<th>State 3: Active</th>
<th>State 4: Playing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audio</td>
<td>None</td>
<td>Background Noise</td>
<td>Background Music</td>
<td>Interviews</td>
</tr>
<tr>
<td>Lights</td>
<td>None</td>
<td>Pulsing</td>
<td>Steady, Dim Pulsing</td>
<td></td>
</tr>
</tbody>
</table>

Shown above is a simplified diagram of how the hardware in the back of the photo is connected.

Conclusion & Next Steps:
Challenges included adjusting the sensitivity and responsiveness of the PIR sensors, getting the Pi WiFi-enabled, and making the wiring efficient/effective.

Future next steps would include remediying these issues as well as, firstly, the construction of additional resonant images for the purpose of interconnecting them. An additional next step could be using the audio capabilities of the DMC Theatre to make interactions with image(s) even more immersive, engaging and ‘meaningful’.

The final vision for this project is to have a collection of resonant images in the same space that ‘talk’ to each other and possibly integrating an interactive website that patrons can access on their mobile phones.

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References:
- https://coastalvoices.lsu.edu/