Automation Prototype Ⅲ Description

Team 3 Automation: Deliverable H

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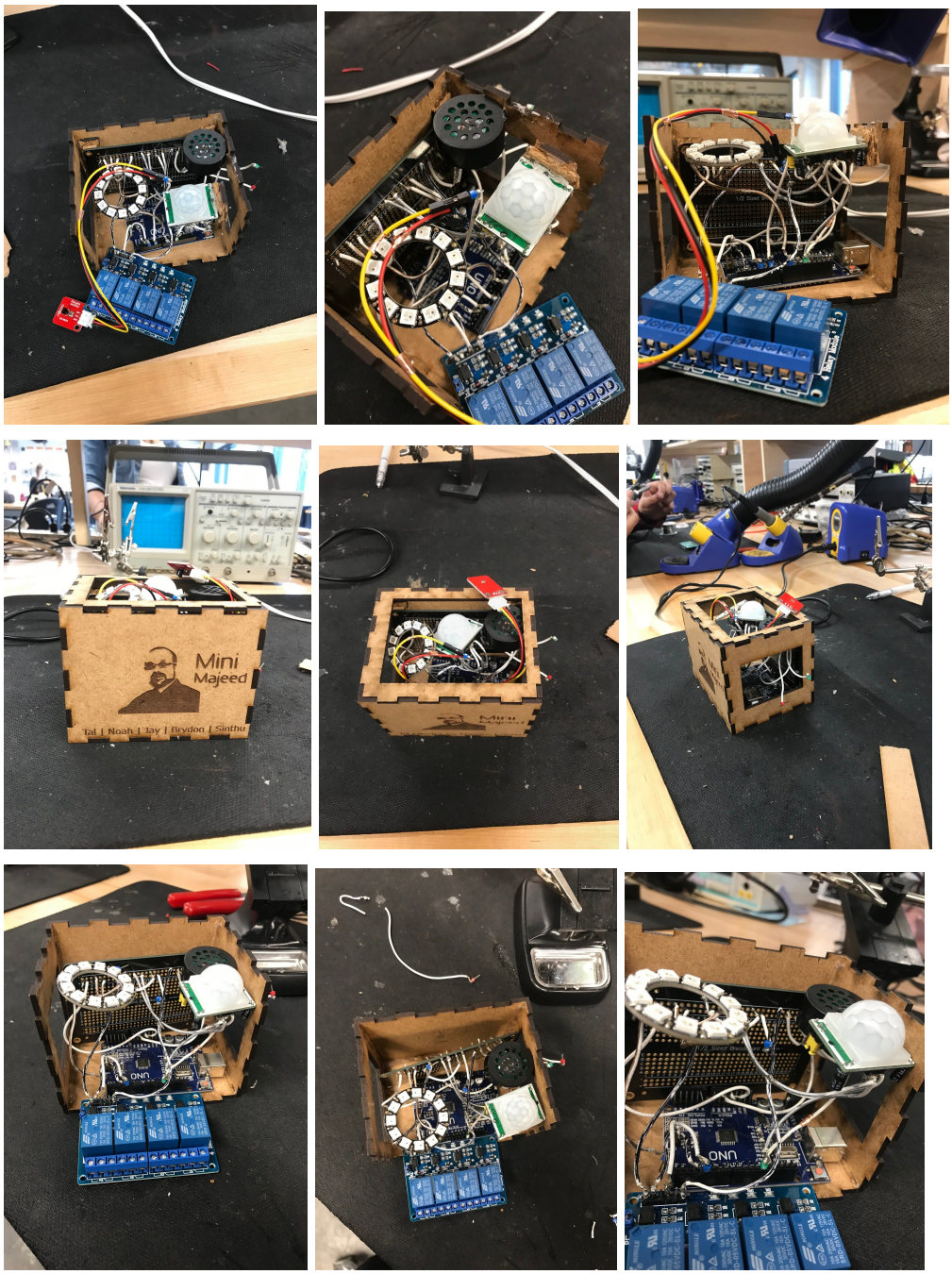
Prototyping Test Plan:

The goal for our third prototype was to design and test the final critical subsystems. We decided to test each subsystem because without access to the completed house and solar energy system, testing the overall house is incredibly difficult. By establishing all subsystems, we leave only integration, which due to the modularity of our design, is incredibly simple to do, and can easily and quickly be done once all critical subsystems have been implemented and verified. Implementing each subsystem will let us better understand feasibility, as well as better learn how each subsystem integrates into the larger function of the house. For our third prototype, we wanted to ensure that every subsystem had been properly connected and tested, as well as assembled into a modular, portable system, therefore, we decided that our stopping criteria would be once every subsystem to be used in the larger house worked, and when all aspects were assembled in a portable design. We wanted a medium fidelity prototype, that would consist of final implementations of each individual subsystem, however, the integration of them together was not vital in this stage. We wanted to measure the portability of the system, as well as the feasibility of each individual subsystem before integrating the third prototype into our final house.

Design Created:

From our previous prototypes, we were able to verify our designs for the motion sensor and LED strip lighting. Moving forward, we wanted to apply what we learned about arduino usage from our first prototypes to continue to develop our subsystems that would later be integrated into the larger house design. This allowed us to continue to develop the design by verifying that our proposed solutions for the final design would indeed work individually, and work towards integrating them all together, by packaging the design into a portable box, we were also able to establish the desired modularity. We were able to verify and take videos of our LED ring, speaker, and temperature sensor, as well as test and verify our fan and ultrasonic rangefinder usage, although we did not record videos of these systems working.



Design Feedback:

Other potential clients expressed satisfaction with the modularity of our design, as well as being interested in each subsystem. Clients were satisfied with the ease of moving our design, as well as how easily it could be installed into a house. Finally, clients expressed that getting the systems integrated together is very vital, and we plan to do this very quickly moving forward.