Design Problem: The Smart Chicken Coop is designed to make caring for your chickens easier and more automated. Ensuring that chickens get everything they need to live happily takes time and effort, so anyway to reduce the time and effort necessary to care for the chickens is beneficial to both the chickens and their owners.

Team Development: The majority of this project was done remotely to maintain social distancing, so organizing individual workloads was crucial. We broke the initial design down into many smaller components, then assigned components to each group member based on preference and previous experience. Everyone was assigned an equal workload. Then, these tasks were completed independently of each other, so there was very little need for a physical meetup. We had biweekly virtual meetings to check up on each other and communicate our individual progress and short term goals. Only when the time came for the final design assembly did the group meet in person. In only a few meetings, the design was assembled and tested.

Design Evaluation and Revision: There were two steps for component design for this project. First, we brainstorm a general method for the component. This included what the components input and output signals would be. Then, the individual assigned to that component would begin researching and prototyping what was discussed. If the design does not work, then this cycle is repeated. Through this process we were able to use group feedback in the components we were designing individually. **Key lessons:** This project gave us experience developing and collaborating on a design remotely. Organizing virtual communication and matching hardware designs remotely are important skills, and this project depended on them. By far, the greatest lesson learned in this project is the importance of communication. There were many times during this project where if we had not communicated our plans to the group before executing them, entire components would be incompatible and would need to be discarded. Thanks to our biweekly meetings and frequent updates we were able to avoid such disasters.

Project Timeline:

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