**Organize and Describe Data:**

Figure 2- Box Diagram

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| Type | Variable Name | Description | Variable Type/Sample Values | Operational Constraints |
| Input | Real-Time Clock | A continuous variable responsible of keeping track of the current time. | Integer-1800 | Time must be provided in 24 Hour format. |
| Input | Feeding Time | Users will input a time which will be stored as a discreet variable. | Integer -2000 | Can only set a single time for feeding. |
| Input | Weight Sensor | This will be a continuous variable responsible for measuring the weight of the bowl at all times. | Integer -100 | The weight sensor will have to be zeroed each time the feeding bowl is replaced. |
| Input | Feeding Amount | Users will be asked to input how much food in grams do they want the pet station to dispense at feeding time. | Integer -400 | Users can only input a single amount; they will not be able to input a range a value. |
| Input | Food Level Sensor | This will be a continuous variable responsible for keeping track of how much food stock is inside the pet feeder currently. | Integer -100 | As the food level censor is designed to weight food in grams, it cannot be used to measure other types of foods such as liquids. |
| Input | Minimum Consumption Threshold | Users will input a minimum amount of food which the pet has to consume. | Integer -50 | Users will have to provide a specific value and not a range. |

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| Input | Maximum Time | This variable will store a user input which defines the maximum time allowed for the pet to meet the minimum consumption threshold. | Integer-0600 | The user will have to specify a time in 24-hour format. They will not be able to specify a duration. |
| Input | Hardware Sensor | This variable will store the current status of hardware. And will be a discreet variable. | Boolean-Working/Not Working | No redundancy will be built in. So, a single sensor failure may result in false alerts. |
| Output | Rotate Motor | When it is feeding time and there is enough food stock, the motor will be instructed to rotate. | Boolean – Rotate/Not Rotate | No redundancy will be built in so a single motor failure will mean that the system will be unable to dispense food. |
| Output | Alert | The pet feeder system will send an alert depending on if there is hardware issues, low food stock, and most importantly if time and consumption thresholds are exceeded. | String - Alert: Hardware Issues; Alert: Refilling Required; Alert: The pet has consumed very little today | Alerts are sent only as messages to the central database; no built-in light or sound indicators are available. This means staff may not see or respond to alerts promptly. |
| Output | Confirmation Message | A message will be sent to the central database after the minimum consumption threshold is passed. | String - Pet has met the consumption constraint for the day. | Sent only once per day; no real-time or frequent updates are provided to staff. |