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| **NAME** | **TYPE** | **EXAMPLE** | **CATEGORY** | **DESCRIPTION** |
| rtc\_time | Time (HH:MM) | 08:00 | Input | Current time from RTC; compared with schedule (24-hour format). |
| Schedule [] | List | [08:00, 18:00] | Input | Feeding times; typically 1–4 per day. |
| portion\_g | Integer (g) | 60 | Input | Portion size; 20–120 g typical; must be >0. |
| bowl\_weight\_g | Integer (g) | 120 | Input | Measured by load cell; bowl tare weight is predefined. |
| bin\_level | Enum | OK / LOW / EMPTY | Input | |  | | --- | |  |  |  | | --- | | Food storage status from IR/ultrasonic sensor. | |
| jam\_flag | Boolean | false | Input | |  | | --- | | Detects jams via motor current or encoder feedback. |  |  | | --- | |  | |
| Manual\_feed | Boolean | false | Input | Triggered by user button for one manual cycle. |
| eat\_timeout\_min | Integer (min) | 10 | Input | Time allowed for pet to eat; 5–30 min typical. |
| servo\_rotate(sec) | Action | 3 s | Output | Dispenses portion by rotating servo for set duration. |
| alert(type,msg) | Action | BUZZER + LED | Output | Notifies staff of errors (jam, uneaten food, empty bin). |
| log(event) | Record | "Dispensed 60g at 08:00" | Output | |  | | --- | |  |  |  | | --- | | Stores timestamped actions and alerts for review. | |

**Step 2 : DATA ORGANIZATION**