Part 3: AI Agent Integration

For the real-world implementation of my logic, a prompt was given to Microsoft Copilot asking about the components that can be utilized. It responded by providing a detailed list of hardware for three core features: Servo motor control, storage and consumption monitoring. A Servo Motor (SG90 or MG996R) controlled by a Microcontroller (Arduino Uno/Raspberry Pi) to release fixed amounts of food at scheduled times, an Ultrasonic Sensor (HC-SR04**)** and ADC to track the food level in the bin and a Load Cell with HX711 Amplifier Module to weigh the bowl were suggested. It also proposed “Real-Time Clock Module DS3231”, “Piezo Speaker”, “Battery Pack”, “Wi-Fi Module ESP8266” for their respective functions. Thus, the AI was able to give me an idea about the possible tangible plan of my abstract idea. However, it did not account for cost, which in real design is critical.

The most significant improvement came during failure analysis as my logic didn’t include storage reliability while Copilot recommended to use EEPROM to save the system state during a power outage. Learning about specific components also bridged the gap between my logic and real-world implementation.

Finally by discussing the ethics, Copilot introduced the concept of "automation bias," where owners might over-trust the system. This expanded my focus from solving a technical challenge to designing a technology that ensures human–pet interactions. In this way, the AI acted not only as a source of information but as a partner in system refinement and critical reflection.