**Step 4:** **implement the Solution (Word Coding)**

**Improved Code:**

#include "HX711.h"

HX711 scale ;

#define DT 3

#define SCK 2

float beforeDispenseWeight = 0;

float afterDispenseWeight = 0;

float postMealWeight = 0;

float foodDispensedThreshold = 10.0; // grams

float uneatenThreshold = 5.0; // grams

void setup() {

scale.begin(DT, SCK);

scale.set\_scale(); // Calibrate this value

scale.tare(); // Zero the scale

lcd.begin(16, 2);

pinMode(buzzerPin, OUTPUT);

pinMode(foodSensorPin, INPUT);

}

void loop() {

if (currentTime == feedingTime && digitalRead(foodSensorPin) == HIGH) {

beforeDispenseWeight = scale.get\_units();

feederServo.write(90);

delay(2000);

feederServo.write(0);

delay(3000); // Wait for food to settle

afterDispenseWeight = scale.get\_units();

float dispensedAmount = afterDispenseWeight - beforeDispenseWeight;

if (dispensedAmount >= foodDispensedThreshold) {

lcd.clear();

lcd.setCursor(0, 0);

lcd.print("Food Dispensed");

delay(600000); // Wait 10 minutes for pet to eat

postMealWeight = scale.get\_units();

float eatenAmount = afterDispenseWeight - postMealWeight;

lcd.setCursor(0, 1);

if (eatenAmount >= uneatenThreshold) {

lcd.print("Meal Eaten");

digitalWrite(buzzerPin, LOW);

} else {

lcd.print("Not Eaten!");

digitalWrite(buzzerPin, HIGH);

}

} else {

lcd.clear();

lcd.print("Dispense Fail");

digitalWrite(buzzerPin, HIGH);

}

} else if (digitalRead(foodSensorPin) == LOW) {

lcd.clear();

lcd.print("Low Food!");

digitalWrite(buzzerPin, HIGH);

} else {

digitalWrite(buzzerPin, LOW);

}

}