**I. Arduino DUE**

include servo library

include load cell amplifier HX711 library

void setup() {

initialize Serial

initialize Serial1（USART 0）

set food-dispensing status to 0

set camera status to 0

set food-dispensing pin as input

set camera pin as input

set calibration factor to 1941.1 (opensource code was used to get the factor) (Sarah & Alex, 2019)

attach servo motor to digital pin 7

attach camera control line to digital pin 10

attach load cell amplifier pins DAT & CLK to digital pin 3 & 2

set the angle of the servo motor to 180 (remain stationary)

set camera pin to logical 1

}

void loop() {

if the interrupt was triggered, delay is performed by a function with a while loop

read the food-dispensing pin status from Wi-Fi module

read the camera pin status from Wi-Fi module

if camera status is 1

a double pulse is generated to start recording

delay for 10 seconds

another double pulse is generated to stop recording

set camera status back to 0

read weight data from load cell amplifier and convert its unit into gram

if Serial2 is available, write the data into Serial1 (USART0)

}

**II. NodeMCU Wi-Fi Module**

include Firebase libraries

include ESP8266 library

void setup() {

initialize Serial (USART 0)

set food-dispensing pin as output

set up Wi-Fi connection with SSID and password

set food-dispending status to "OFF" on Firebase

set camera status to "OFF" on Firebase

set food weight to 0 on Firebase

}

void loop() {

if Serial is available

read weight data from Serial

set food weight on Firebase

read food-dispensing status from Firebase

if food-dispensing status is "ON" and Wi-Fi is connected

set food-dispensing pin to logical 1

delay 1 second

set food-dispensing pin to logical 0

set food-dispensing status on Firebase to "OFF"

if food-dispensing status is "OFF" and Wi-Fi is connected or if Wi-Fi is disconnected

set food-dispensing pin to logical 0

read camera status from Firebase

if camera status is "ON" and Wi-Fi is connected

write 1 to Serial1 (USART 0)

delay 1 second

set camera status on Firebase to "OFF"

if camera status is "OFF" and Wi-Fi is connected or if Wi-Fi is disconnected

set camera pin to logical 0

}