case 4:

start\_time = 0;

i = 0;

j = 0;

// message format: "case , target , control(and sample) rate , duty(fixed) , "duty" for LED2 "

sscanf(message + 2, "%d,%d,%d, %d", &target, &interval, &duty, &interf); //state = program state, interval = Hz of sample

**Serial**.println(">Case 4 is running");

start\_time = millis();

while ((millis() - start\_time) <= 2005)

{

analogWrite(L1, interf);

if ((millis() - start\_time) >= i \* interval) //for graph plot

{

if (analogRead(LDR) <= target) //ON

analogWrite(L2, duty);

if (analogRead(LDR) > target) //OFF

analogWrite(L2, 0);

i++;

}

//Take sample from LDR

if ((millis() - start\_time) >= j \* 10) //sample to graph 100Hz

{

xArr[j] = millis() - start\_time;

yArr[j] = analogRead(LDR);

j++;

}

}

//Send data to CVI

for (i = 1; i < 201; i++)

{

sprintf(message, "%d,%d", xArr[i], yArr[i]);

**Serial**.println(message);

}

**Serial**.println("\*");

digitalWrite(L1, LOW);

digitalWrite(L2, LOW);

state = 0;

**Serial**.println(">Returning to State 0");

break;