ARDUINO test code:

```
Int redPin = 2;

Int yellowPin = 3;

Int greenPin = 4;

Int aPin = 6;

Int bPin = 7;

Int buttonPin = 5;


Int state = 0;

Int longPeriod = 5000; // Time at green or red

Int shortPeriod = 700; // Time period when changing

Int targetCount = shortPeriod;

Int count = 0;


Void setup ()

{

PinMode (aPin, INPUT);

PinMode (bPin, INPUT);

PinMode (buttonPin, INPUT);

PinMode (redPin, OUTPUT);

PinMode (yellowPin, OUTPUT);

PinMode (greenPin, OUTPUT);

}}


Void loop ()

{

Count ++
```

```
If (digitalRead (buttonPin))

{

SetLights (HIGH, HIGH, HIGH);

}}

Else

{

Int change = getEncoderTurn ();

Int newPeriod = longPeriod + (change * 1000);

If (newPeriod> = 1000 && newPeriod <= 10000)

{

LongPeriod = newPeriod;

}}

If (count> targetCount)

{

SetState ();

Count = 0;

}}

}}

Delay (1);

}}


Int getEncoderTurn ()

{

// return -1, 0, or +1

Static int oldA = LOW;

Static int oldB = Low;

Int result = 0;
```

```
Int newA = digitalRead (aPin);

Int newB = digitalRead (bPin);

If (newA! = OldA || newB! = OldB)

{

// something has changed

If (oldA == LOW && newA == HIGH)

{

Result = - (oldB * 2 - 1);

}}

}}

OldA = newA;

OldB = newB;

Return result;

}}


Int setState ()

{

If (state == 0)

{

SetLights (HIGH, LOW, LOW);

TargetCount = longPeriod;

State = 1;

}}

Else if (state == 1)

{

SetLights (HIGH, HIGH, LOW);

TargetCount = shortPeriod;
```

```
State = 2;

}}

Else if (state == 2)

{

SetLights (LOW, LOW, HIGH);

TargetCount = longPeriod;

State = 3;

}}

Else if (state == 3)

{

SetLights (LOW, HIGH, LOW);

TargetCount = shortPeriod;

State = 0;

}}

}}


Void setLights (int red, int yellow, int green)

{

DigitalWrite (redPin, red);

DigitalWrite (yellowPin, yellow);

DigitalWrite (greenPin, green);

}}
```