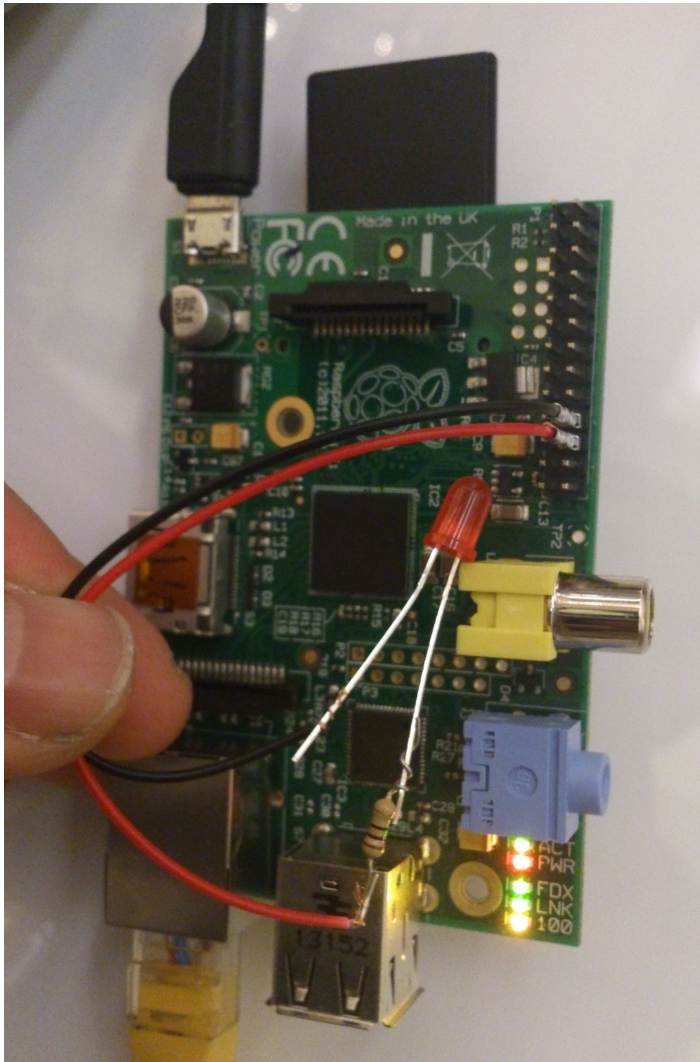


Day 2



LED LIGHT PROJECT WITH JAVA

GenCyber San Antonio

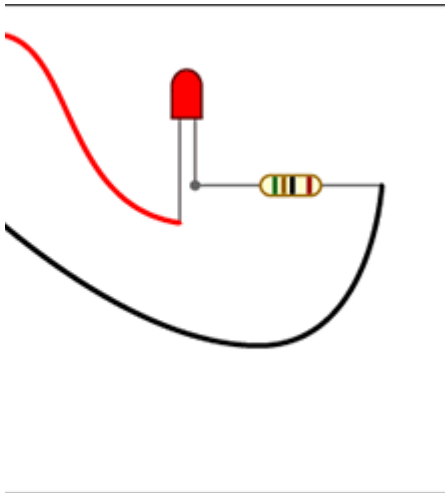
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What we need?

- Raspberry Pi
- 1 Resistor
- 2 Wires
- 1 LED Light
- Electrical Tape

STEPS

- 1) Connect the resistor to the longer leg of LED light by twisting. (Tape over the connection point if you have trouble)
- 2) Connect the green cable to the other end of resistor by twisting the metal parts of the cables. (Tape over the connection point if you have trouble)
- 3) Connect the yellow cable to the shorter leg of LED light by twisting (Tape over the connection point if you have trouble)

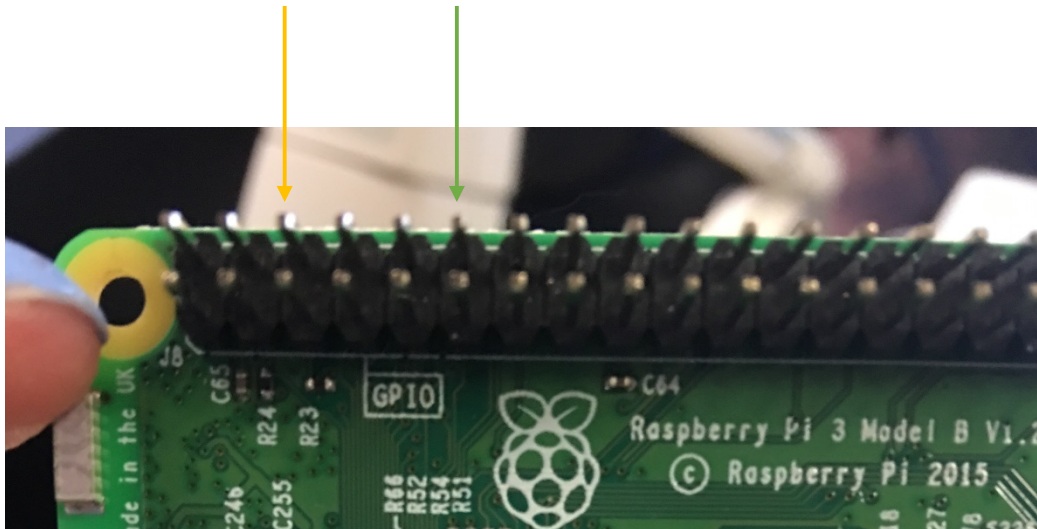


- 4) Take of your raspberry pi out the boxes. Build all the connections again.

- 5) Connect your long cable to the upper left pin on your Raspberry Pi. And your short yellow cable to the 3rd pin as in below schema.

Raspberry Pi 3 Model B (J8 Header)				
GPIO	NAME	NAME	GPIO	
1	3.3V	5.0V	40	GPIO 29
2	5.0V	5.0V	41	GPIO 30
3	5.0V	5.0V	42	GPIO 31
4	5.0V	5.0V	43	GPIO 32
5	5.0V	5.0V	44	GPIO 33
6	5.0V	5.0V	45	GPIO 34
7	5.0V	5.0V	46	GPIO 35
8	5.0V	5.0V	47	GPIO 36
9	5.0V	5.0V	48	GPIO 37
10	5.0V	5.0V	49	GPIO 38
11	5.0V	5.0V	50	GPIO 39
12	5.0V	5.0V	51	GPIO 40
13	5.0V	5.0V	52	GPIO 41
14	5.0V	5.0V	53	GPIO 42
15	5.0V	5.0V	54	GPIO 43
16	5.0V	5.0V	55	GPIO 44
17	5.0V	5.0V	56	GPIO 45
18	5.0V	5.0V	57	GPIO 46
19	5.0V	5.0V	58	GPIO 47
20	5.0V	5.0V	59	GPIO 48
21	5.0V	5.0V	60	GPIO 49
22	5.0V	5.0V	61	GPIO 50
23	5.0V	5.0V	62	GPIO 51
24	5.0V	5.0V	63	GPIO 52
25	5.0V	5.0V	64	GPIO 53
26	5.0V	5.0V	65	GPIO 54
27	5.0V	5.0V	66	GPIO 55
28	5.0V	5.0V	67	GPIO 56
29	5.0V	5.0V	68	GPIO 57
30	5.0V	5.0V	69	GPIO 58
31	5.0V	5.0V	70	GPIO 59
32	5.0V	5.0V	71	GPIO 60
33	5.0V	5.0V	72	GPIO 61
34	5.0V	5.0V	73	GPIO 62
35	5.0V	5.0V	74	GPIO 63
36	5.0V	5.0V	75	GPIO 64
37	5.0V	5.0V	76	GPIO 65
38	5.0V	5.0V	77	GPIO 66
39	5.0V	5.0V	78	GPIO 67
40	5.0V	5.0V	79	GPIO 68
41	5.0V	5.0V	80	GPIO 69
42	5.0V	5.0V	81	GPIO 70
43	5.0V	5.0V	82	GPIO 71
44	5.0V	5.0V	83	GPIO 72
45	5.0V	5.0V	84	GPIO 73
46	5.0V	5.0V	85	GPIO 74
47	5.0V	5.0V	86	GPIO 75
48	5.0V	5.0V	87	GPIO 76
49	5.0V	5.0V	88	GPIO 77
50	5.0V	5.0V	89	GPIO 78
51	5.0V	5.0V	90	GPIO 79
52	5.0V	5.0V	91	GPIO 80
53	5.0V	5.0V	92	GPIO 81
54	5.0V	5.0V	93	GPIO 82
55	5.0V	5.0V	94	GPIO 83
56	5.0V	5.0V	95	GPIO 84
57	5.0V	5.0V	96	GPIO 85
58	5.0V	5.0V	97	GPIO 86
59	5.0V	5.0V	98	GPIO 87
60	5.0V	5.0V	99	GPIO 88
61	5.0V	5.0V	100	GPIO 89
62	5.0V	5.0V	101	GPIO 90
63	5.0V	5.0V	102	GPIO 91
64	5.0V	5.0V	103	GPIO 92
65	5.0V	5.0V	104	GPIO 93
66	5.0V	5.0V	105	GPIO 94
67	5.0V	5.0V	106	GPIO 95
68	5.0V	5.0V	107	GPIO 96
69	5.0V	5.0V	108	GPIO 97
70	5.0V	5.0V	109	GPIO 98
71	5.0V	5.0V	110	GPIO 99
72	5.0V	5.0V	111	GPIO 100
73	5.0V	5.0V	112	GPIO 101
74	5.0V	5.0V	113	GPIO 102
75	5.0V	5.0V	114	GPIO 103
76	5.0V	5.0V	115	GPIO 104
77	5.0V	5.0V	116	GPIO 105
78	5.0V	5.0V	117	GPIO 106
79	5.0V	5.0V	118	GPIO 107
80	5.0V	5.0V	119	GPIO 108
81	5.0V	5.0V	120	GPIO 109
82	5.0V	5.0V	121	GPIO 110
83	5.0V	5.0V	122	GPIO 111
84	5.0V	5.0V	123	GPIO 112
85	5.0V	5.0V	124	GPIO 113
86	5.0V	5.0V	125	GPIO 114
87	5.0V	5.0V	126	GPIO 115
88	5.0V	5.0V	127	GPIO 116
89	5.0V	5.0V	128	GPIO 117
90	5.0V	5.0V	129	GPIO 118
91	5.0V	5.0V	130	GPIO 119
92	5.0V	5.0V	131	GPIO 120
93	5.0V	5.0V	132	GPIO 121
94	5.0V	5.0V	133	GPIO 122
95	5.0V	5.0V	134	GPIO 123
96	5.0V	5.0V	135	GPIO 124
97	5.0V	5.0V	136	GPIO 125
98	5.0V	5.0V	137	GPIO 126
99	5.0V	5.0V	138	GPIO 127
100	5.0V	5.0V	139	GPIO 128
101	5.0V	5.0V	140	GPIO 129
102	5.0V	5.0V	141	GPIO 130
103	5.0V	5.0V	142	GPIO 131
104	5.0V	5.0V	143	GPIO 132
105	5.0V	5.0V	144	GPIO 133
106	5.0V	5.0V	145	GPIO 134
107	5.0V	5.0V	146	GPIO 135
108	5.0V	5.0V	147	GPIO 136
109	5.0V	5.0V	148	GPIO 137
110	5.0V	5.0V	149	GPIO 138
111	5.0V	5.0V	150	GPIO 139
112	5.0V	5.0V	151	GPIO 140
113	5.0V	5.0V	152	GPIO 141
114	5.0V	5.0V	153	GPIO 142
115	5.0V	5.0V	154	GPIO 143
116	5.0V	5.0V	155	GPIO 144
117	5.0V	5.0V	156	GPIO 145
118	5.0V	5.0V	157	GPIO 146
119	5.0V	5.0V	158	GPIO 147
120	5.0V	5.0V	159	GPIO 148
121	5.0V	5.0V	160	GPIO 149
122	5.0V	5.0V	161	GPIO 150
123	5.0V	5.0V	162	GPIO 151
124	5.0V	5.0V	163	GPIO 152
125	5.0V	5.0V	164	GPIO 153
126	5.0V	5.0V	165	GPIO 154
127	5.0V	5.0V	166	GPIO 155
128	5.0V	5.0V	167	GPIO 156
129	5.0V	5.0V	168	GPIO 157
130	5.0V	5.0V	169	GPIO 158
131	5.0V	5.0V	170	GPIO 159
132	5.0V	5.0V	171	GPIO 160
133	5.0V	5.0V	172	GPIO 161
134	5.0V	5.0V	173	GPIO 162
135	5.0V	5.0V	174	GPIO 163
136	5.0V	5.0V	175	GPIO 164
137	5.0V	5.0V	176	GPIO 165
138	5.0V	5.0V	177	GPIO 166
139	5.0V	5.0V	178	GPIO 167
140	5.0V	5.0V	179	GPIO 168
141	5.0V	5.0V	180	GPIO 169
142	5.0V	5.0V	181	GPIO 170
143	5.0V	5.0V	182	GPIO 171
144	5.0V	5.0V	183	GPIO 172
145	5.0V	5.0V	184	GPIO 173
146	5.0V	5.0V	185	GPIO 174
147	5.0V	5.0V	186	GPIO 175
148	5.0V	5.0V	187	GPIO 176
149	5.0V	5.0V	188	GPIO 177
150	5.0V	5.0V	189	GPIO 178
151	5.0V	5.0V	190	GPIO 179
152	5.0V	5.0V	191	GPIO 180
153	5.0V	5.0V	192	GPIO 181
154	5.0V	5.0V	193	GPIO 182
155	5.0V	5.0V	194	GPIO 183
156	5.0V	5.0V	195	GPIO 184
157	5.0V	5.0V	196	GPIO 185
158	5.0V	5.0V	197	GPIO 186
159	5.0V	5.0V	198	GPIO 187
160	5.0V	5.0V	199	GPIO 188
161	5.0V	5.0V	200	GPIO 189
162	5.0V	5.0V	201	GPIO 190
163	5.0V	5.0V	202	GPIO 191
164	5.0V	5.0V	203	GPIO 192
165	5.0V	5.0V	204	GPIO 193
166	5.0V	5.0V	205	GPIO 194
167	5.0V	5.0V	206	GPIO 195
168	5.0V	5.0V	207	GPIO 196
169	5.0V	5.0V	208	GPIO 197
170	5.0V	5.0V	209	GPIO 198
171	5.0V	5.0V	210	GPIO 199
172	5.0V	5.0V	211	GPIO 200
173	5.0V	5.0V	212	GPIO 201
174	5.0V	5.0V	213	GPIO 202
175	5.0V	5.0V	214	GPIO 203
176	5.0V	5.0V	215	GPIO 204
177	5.0V	5.0V	216	GPIO 205
178	5.0V	5.0V	217	GPIO 206
179	5.0V	5.0V	218	GPIO 207
180	5.0V	5.0V	219	GPIO 208
181	5.0V	5.0V	220	GPIO 209
182	5.0V	5.0V	221	GPIO 210
183	5.0V	5.0V	222	GPIO 211
184	5.0V	5.0V	223	GPIO 212
185	5.0V	5.0V	224	GPIO 213
186	5.0V	5.0V	225	GPIO 214
187	5.0V	5.0V	226	GPIO 215
188	5.0V	5.0V	227	GPIO 216
189	5.0V	5.0V	228	GPIO 217
190	5.0V	5.0V	229	GPIO 218
191	5.0V	5.0V	230	GPIO 219
192	5.0V	5.0V	231	GPIO 220
193	5.0V	5.0V	232	GPIO 221
194	5.0V	5.0V	233	GPIO 222
195	5.0V	5.0V	234	GPIO 223
196	5.0V	5.0V	235	GPIO 224
197	5.0V	5.0V	236	GPIO 225
198	5.0V	5.0V	237	GPIO 226
199	5.0V	5.0V	238	GPIO 227
200	5.0V	5.0V	239	GPIO 228
201	5.0V	5.0V	240	GPIO 229
202	5.0V	5.0V	241	GPIO 230
203	5.0V	5.0V	242	GPIO 231
204	5.0V	5.0V	243	GPIO 232
205	5.0V	5.0V	244	GPIO 233
206	5.0V	5.0V	245	GPIO 234
207	5.0V	5.0V	246	GPIO 235
208	5.0V	5.0V	247	GPIO 236
209	5.0V	5.0V	248	GPIO 237
210	5.0V	5.0V	249	GPIO 238
211	5.0V	5.0V	250	GPIO 239
212	5.0V	5.0V	251	GPIO 240
213	5.0V	5.0V	252	GPIO 241
214	5.0V	5.0V	253	GPIO 242
215	5.0V	5.0V	254	GPIO 243
216	5.0V	5.0V	255	GPIO 244
217	5.0V	5.0V	256	GPIO 245
218	5.0V	5.0V	257	GPIO 246
219	5.0V	5.0V	258	GPIO 247
220	5.0V	5.0V	259	GPIO 248
221	5.0V	5.0V	260	GPIO 249
222	5.0V	5.0V	261	GPIO 250
223	5.0V	5.0V	262	GPIO 251
224	5.0V	5.0V	263	GPIO 252
225	5.0V	5.0V	264	GPIO 253
226	5.0V	5.0V	265	GPIO 254
227	5.0V	5.0V	266	GPIO 255
228	5.0V	5.0V	267	GPIO 256
229	5.0V	5.0V	268	GPIO 257
230	5.0V	5.0V	269	GPIO 258
231	5.0V	5.0V	270	GPIO 259
232	5.0V	5.0V	271	GPIO 260
233	5.0V	5.0V	272	GPIO 261
234	5.0V	5.0V	273	GPIO 262
235	5.0V	5.0V	274	GPIO 263
236	5.0V	5.0V	275	GPIO 264
237	5.0V	5.0V	276	GPIO 265
238	5.0V	5.0V	277	GPIO 266
239	5.0V	5.0V	278	GPIO 267
240	5.0V	5.0V	279	GPIO 268
241	5.0V	5.0V	280	GPIO 269
242	5.0V	5.0V	281	GPIO 270
243	5.0V	5.0V	282	GPIO 271
244	5.0V	5.0V	283	GPIO 272
245	5.0V	5.0V	284	GPIO 273
246	5.0V	5.0V	285	GPIO 274
247	5.0V	5.0V	286	GPIO 275
248	5.0V	5.0V	287	GPIO 276
249	5.0V			

- 7) If you passed the 6th step, connect your green cable to 6th pin.



- 8) Open your BlueJ Editor. Create a new Project with a name, that you pick.
9) Click Porject→ Import.
10) Navigate to your Desktop and select PI4J folder. Then, click to import.
11) Create a new class names LedLight.
12) Write the code below to the LedLight class

```
import com.pi4j.io.gpio.GpioController;
import com.pi4j.io.gpio.GpioFactory;
import com.pi4j.io.gpio.GpioPinDigitalOutput;
import com.pi4j.io.gpio.PinState;
import com.pi4j.io.gpio.RaspiPin;

/**
 * This example code demonstrates how to perform simple state
 * control of a GPIO pin on the Raspberry Pi.
 *
 * @author Robert Savage
 */
public class ControlGpioExample {

    public static void main(String[] args) throws InterruptedException {

        System.out.println("<--Pi4J--> GPIO Control Example ... started.");

        // create gpio controller
        final GpioController gpio = GpioFactory.getInstance();

        // provision gpio pin #01 as an output pin and turn on
```

```

    final GpioPinDigitalOutput pin = gpio.provisionDigitalOutputPin(RaspiPin.GPIO_01,
"MyLED", PinState.HIGH);

    // set shutdown state for this pin
    pin.setShutdownOptions(true, PinState.LOW);

    System.out.println("--> GPIO state should be: ON");

    Thread.sleep(5000);

    // turn off gpio pin #01
    pin.low();
    System.out.println("--> GPIO state should be: OFF");

    Thread.sleep(5000);

    // toggle the current state of gpio pin #01 (should turn on)
    pin.toggle();
    System.out.println("--> GPIO state should be: ON");

    Thread.sleep(5000);

    // toggle the current state of gpio pin #01 (should turn off)
    pin.toggle();
    System.out.println("--> GPIO state should be: OFF");

    Thread.sleep(5000);

    // turn on gpio pin #01 for 1 second and then off
    System.out.println("--> GPIO state should be: ON for only 1 second");
    pin.pulse(1000, true); // set second argument to 'true' use a blocking call

    // stop all GPIO activity/threads by shutting down the GPIO controller
    // (this method will forcefully shutdown all GPIO monitoring threads and scheduled tasks)
    gpio.shutdown();

    System.out.println("Exiting ControlGpioExample");
}
}

```

13) Compile your class

14) Right click on your class and run the main method

Your light will turn on. Then, turn off for 2 seconds and then turn on again.