



Machines of Perception
with Darsha Hewitt

2014 Luis Hurtarte

Block 1

13-15.06.2014

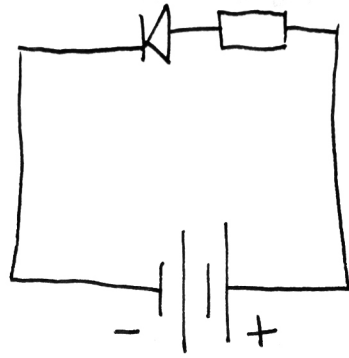
video: <https://vimeo.com/98845474>

MULTIMETER



CONTINUITY

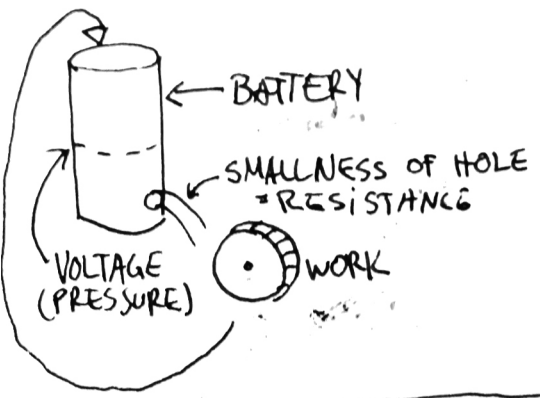
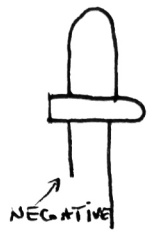
V $\overline{\sim}$ DC
V \sim AC



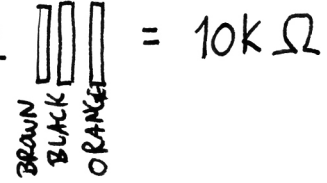
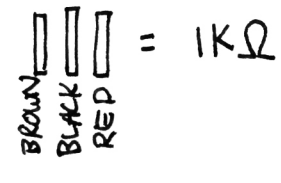
BATTERY

+ \rightarrow \triangle \leftarrow - DIODE

LED \rightarrow LIGHT EMITTING DIODE

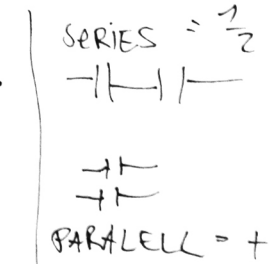
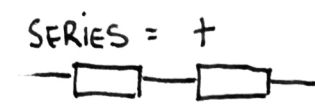
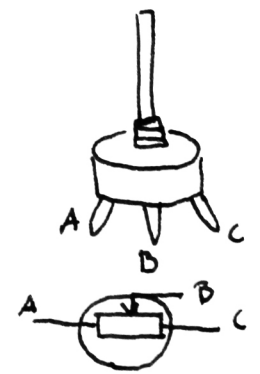
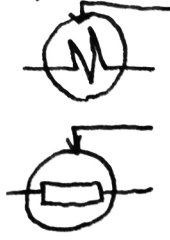


RESISTORS

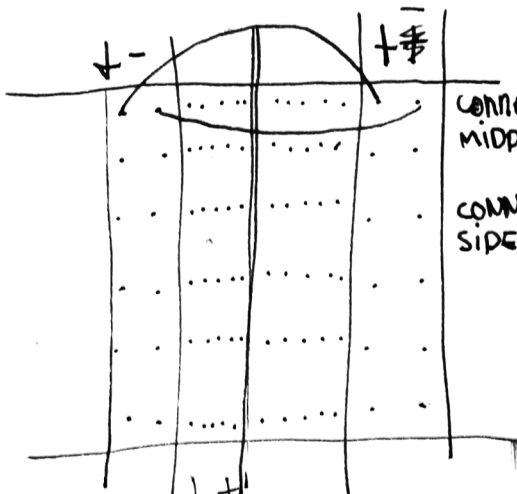


VARIABLE RESISTANCE

POTENTIOMETER

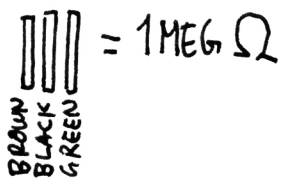
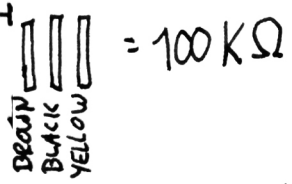


PHOTOCELL
LIGHT DEPENDANT RESISTOR



Just one POSITIVE AND ONE NEG. PER ROW.

CONNECTION MIDDLE
CONNECTION SIDES



CAPACITORS

FARRAD
UF
PF
NF

ELECTROLYTIC CAPACITOR

1x 103
2.01 UF

1x 4.7 uF
1x 100 uF
1x 47 uF
1x 10 uF
1x 1 uF

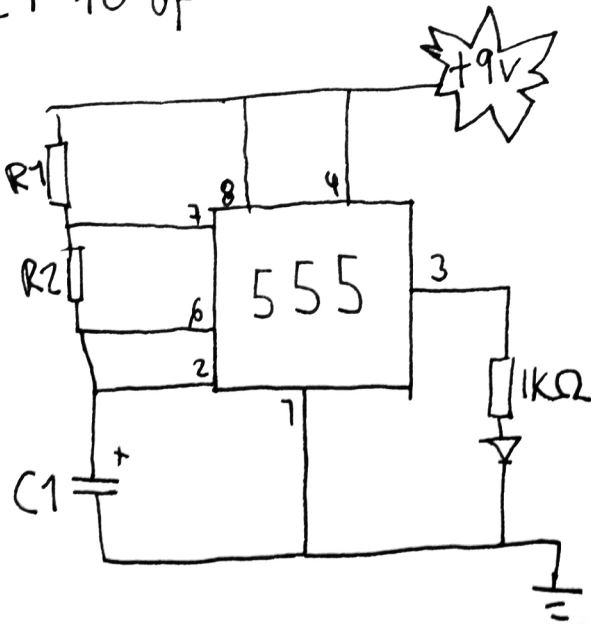


3 LEDS IN PARALELL

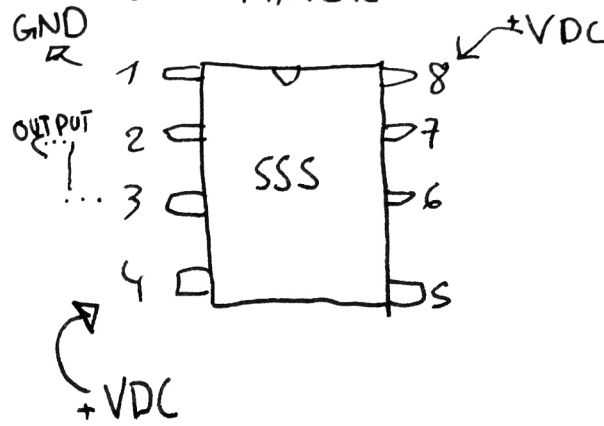


555 TIMER
ASTABLE MODE

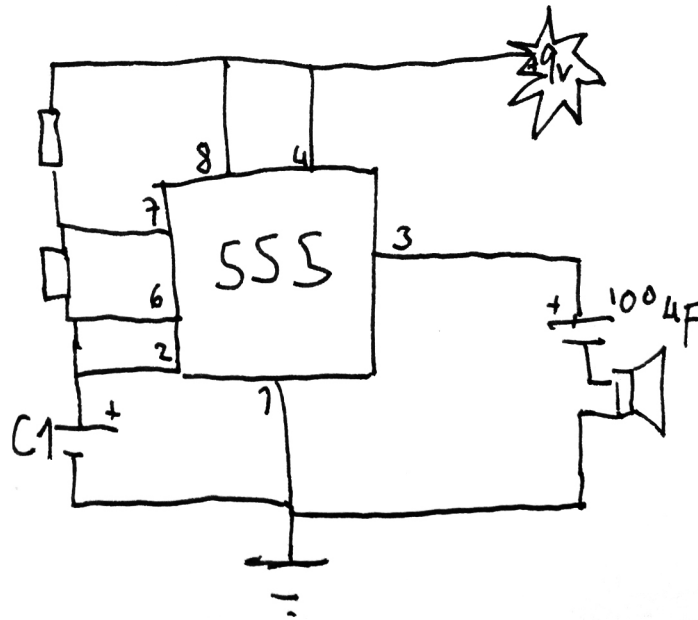
R1 10KΩ
R2 100KΩ
C1 10 μF



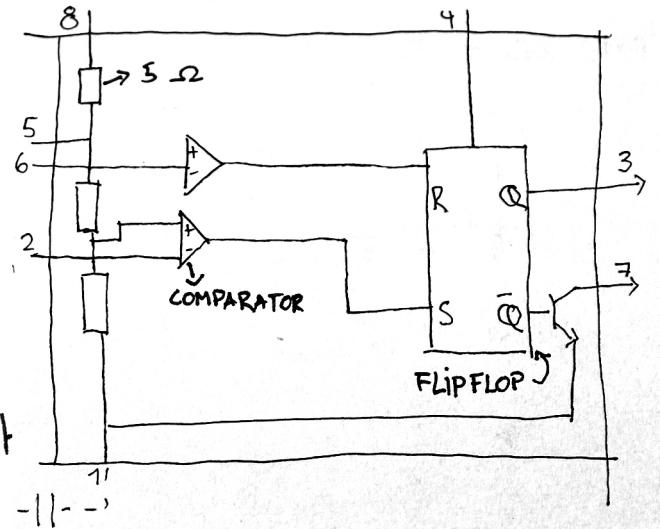
555 TIMER



CAPACITORS CHANGE PITCH

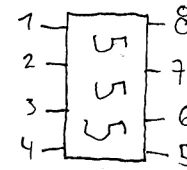


INTERNAL LOGIC OF 555 TIMER



- 1- GROUND
- 2- TRIGGER
- 3- OUTPUT
- 4- ACTIVE LOW RESET
- 5- CONTROL

555 Pinout



- 6- TRESHOLD
- 7- DISCHARGE
- 8- VOLTAGE

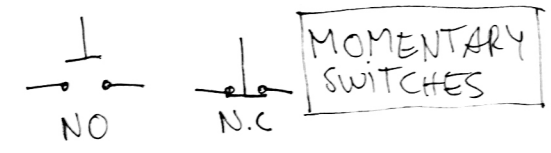
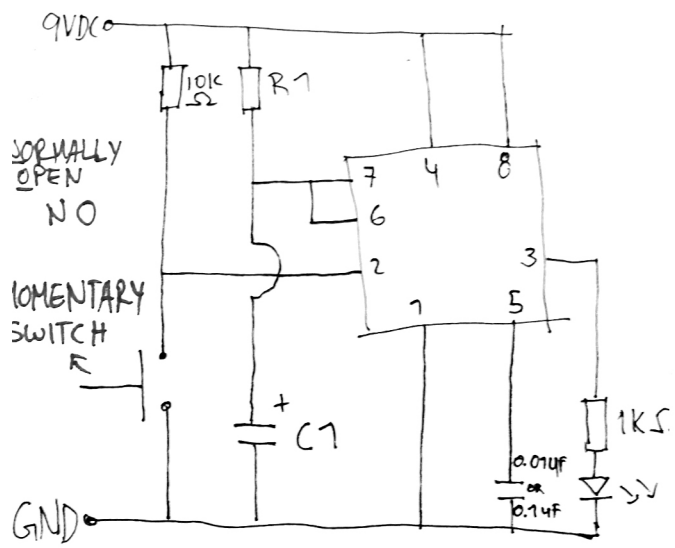
(DUTY CYCLE CALCULATOR)



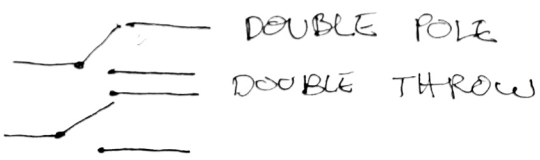
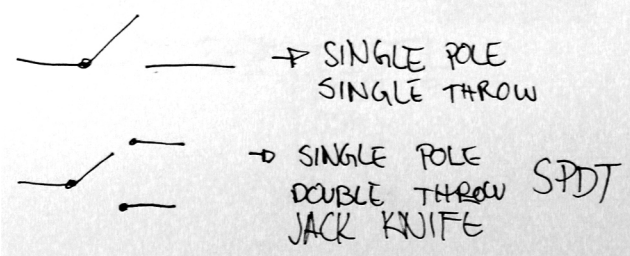
POTENTIOMETER



555 MONOSTABLE MODE OR ONE SHOT

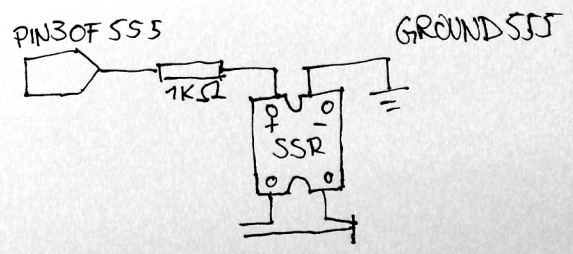
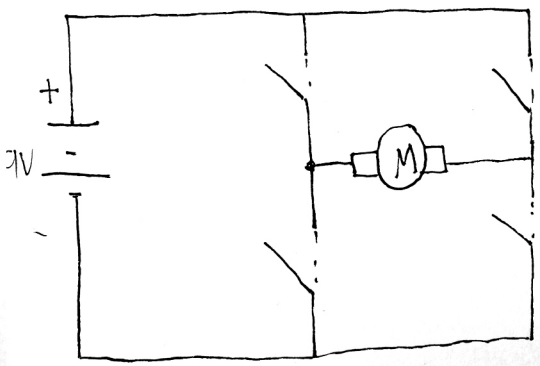


SWITCH → MONOSTABLE
RESISTANCE → ASTABLE
(PIN 6-7)

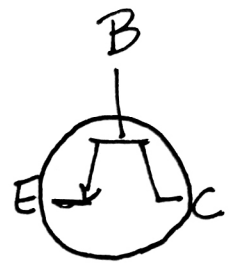
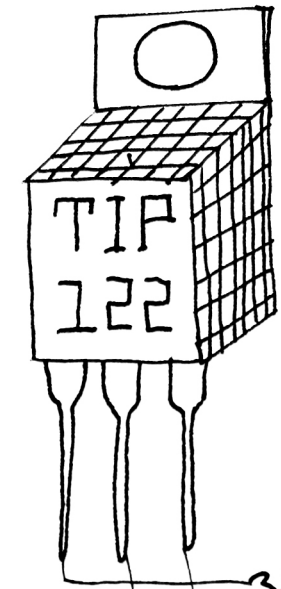


SECRET LIFE OF MACHINES

H-BRIDGE



TIP 122

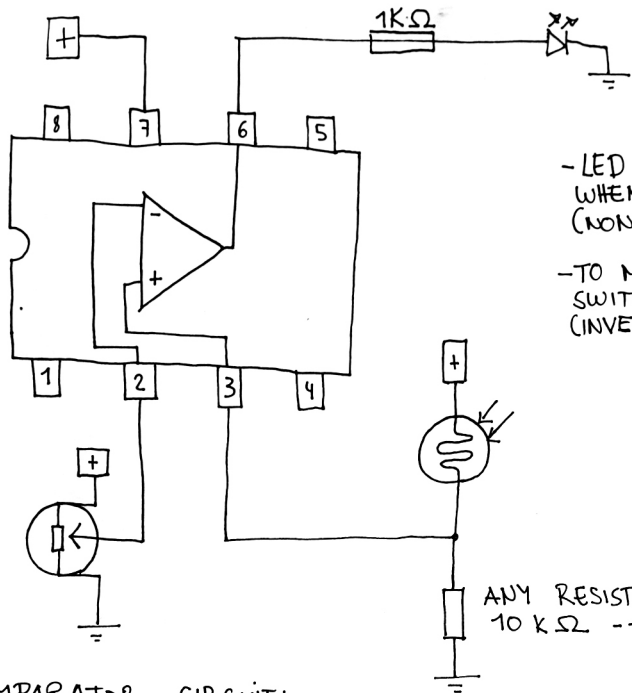


BASE
COLLECTOR
EMITTER

Block 2

20-22.06.2014

video: <https://vimeo.com/98846151>



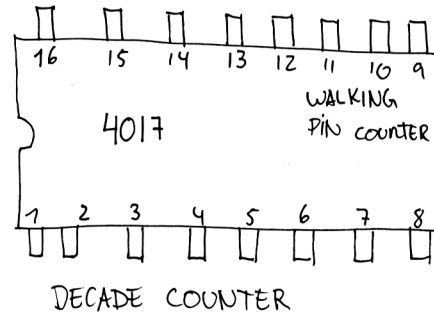
- LED TURN ON
WHEN LIGHT IS BRIGHT
(NON-INVERTING)

- TO MAKE DARK DETECTOR
SWITCH PINS 2+3
(INVERTING)

ANY RESISTOR BETWEEN
10 KΩ - 100 KΩ

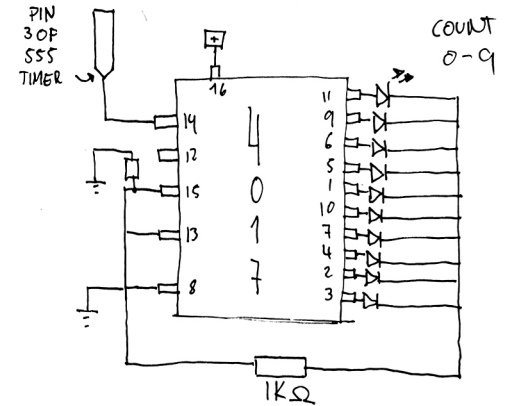
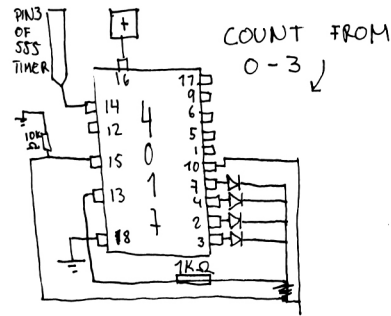
COMPARATOR CIRCUIT:
WITH 741 OPERATIONAL AMPLIFIER

1. SET IT UP SO THAT THE LIGHT YOU WANT TO DETECT IS SHINING ON THE PHOTOCELL
2. TURN THE POTI BACK + FORTH - ONE DIRECTION OR THE OTHER WILL MAKE THE LED TURN OFF AND STAY OFF NO MATTER WHAT YOU DO WITH THE PHOTO CELL, TURN THE POTI FULLY IN THIS DIRECTION
3. NOW TURN THE POTI SLOWLY BACK IN THE OTHER DIRECTION UNTIL THE LED JUST TURNS ON (TRIP POINT)
4. GIVE IT A BIT OF AN EXTRA TUN IN THIS DIRECTION. NOW YOU SHOULD BE ABLE TO EASILY TURN OFF + ON LED BY BLOCKING THE LIGHT SOURCE.



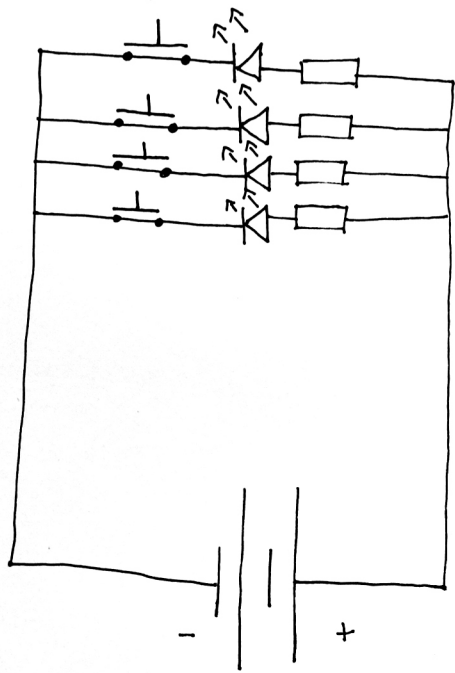
PIN OUT

1 OUTPUT 5	9 OUTPUT 8
2 OUTPUT 1	10 OUTPUT 4
3 OUTPUT 0	11 OUTPUT 9
4 OUTPUT 2	12 CARRY OUTPUT
5 OUTPUT 6	13 ENABLE PIN
6 OUTPUT 7	14 CLOCK INPUT
7 OUTPUT 3	15 RESET PIN
8 GROUND	16 POWER

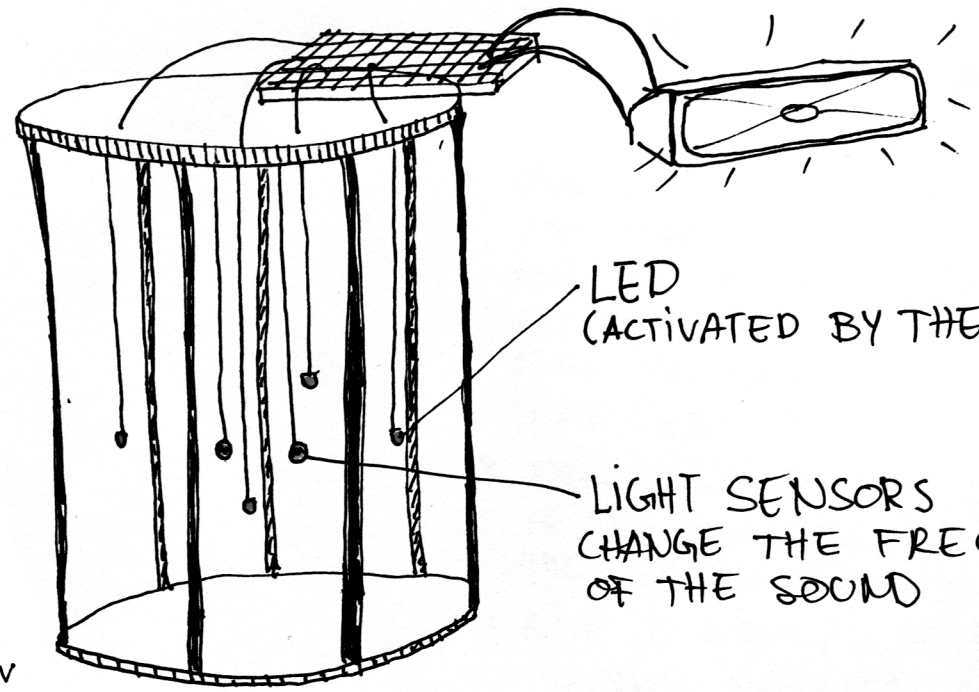


Assignment 1 and 2

video: <https://vimeo.com/98824110>



LIGHTS



LED
(ACTIVATED BY THE WIND)

LIGHT SENSORS
CHANGE THE FREQUENCY
OF THE SOUND

SOUND

