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220 Lab 01 Breadboard
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Preparation

Truth tables and equations:

$$\text{Alarm} = (\text{low bat}) * (\text{cord})'$$

$$G = B * A'$$

$$\text{Fan} = (\text{temp}) * (((\text{Low bat}) * (\text{cord})')' + (\text{low bat})')$$

$$\text{Fan} = \text{temp} * \text{alarm}'$$

$$F = C * G'$$

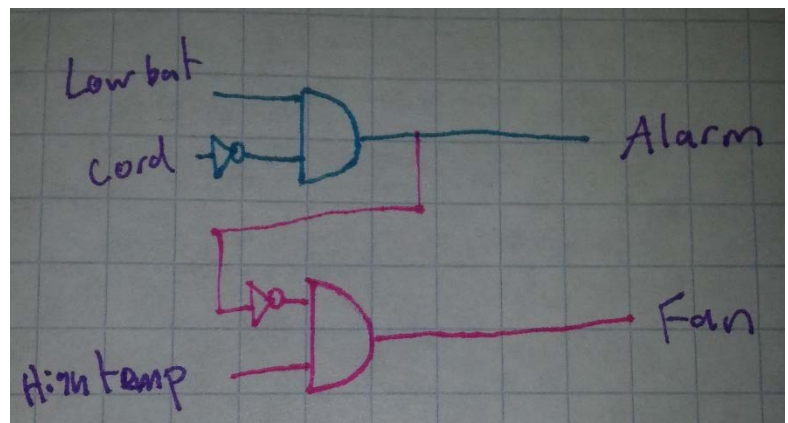
English:

The Alarm sounds when we have a low battery and are not plugged in.

The Fan turns on when we have a high temperature and the alarm is not sounding (high temperature and if low battery, has a cord)

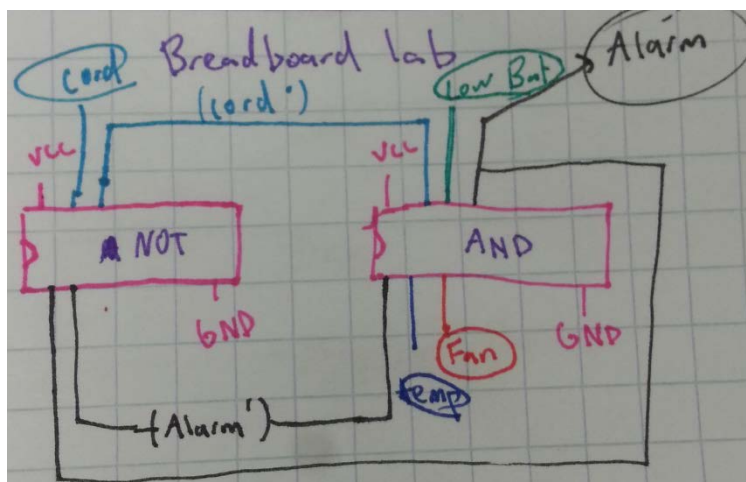
Cord	Low Bat	Temp	Fan	Alarm
0	0	0	0	0
0	0	1	1	0
0	1	0	0	1
0	1	1	0	1
1	0	0	0	0
1	0	1	1	0
1	1	0	0	0
1	1	1	1	0

Draw the schematic:



Procedure

What I actually used:



Tested results of the circuit:

Cord	Low Bat	Temp	Fan	Alarm
0	0	0	0	0
0	0	1	1	0
0	1	0	0	1
0	1	1	0	1
1	0	0	0	0
1	0	1	1	0
1	1	0	0	0
1	1	1	1	0

Anomalies

My only problem was that I mixed up my AND and NOT chips, so nothing was plugged in properly.