

RETROFITTING LED LAMP INTO A SMART LAMP

(Turn any lamp into smart lamp)

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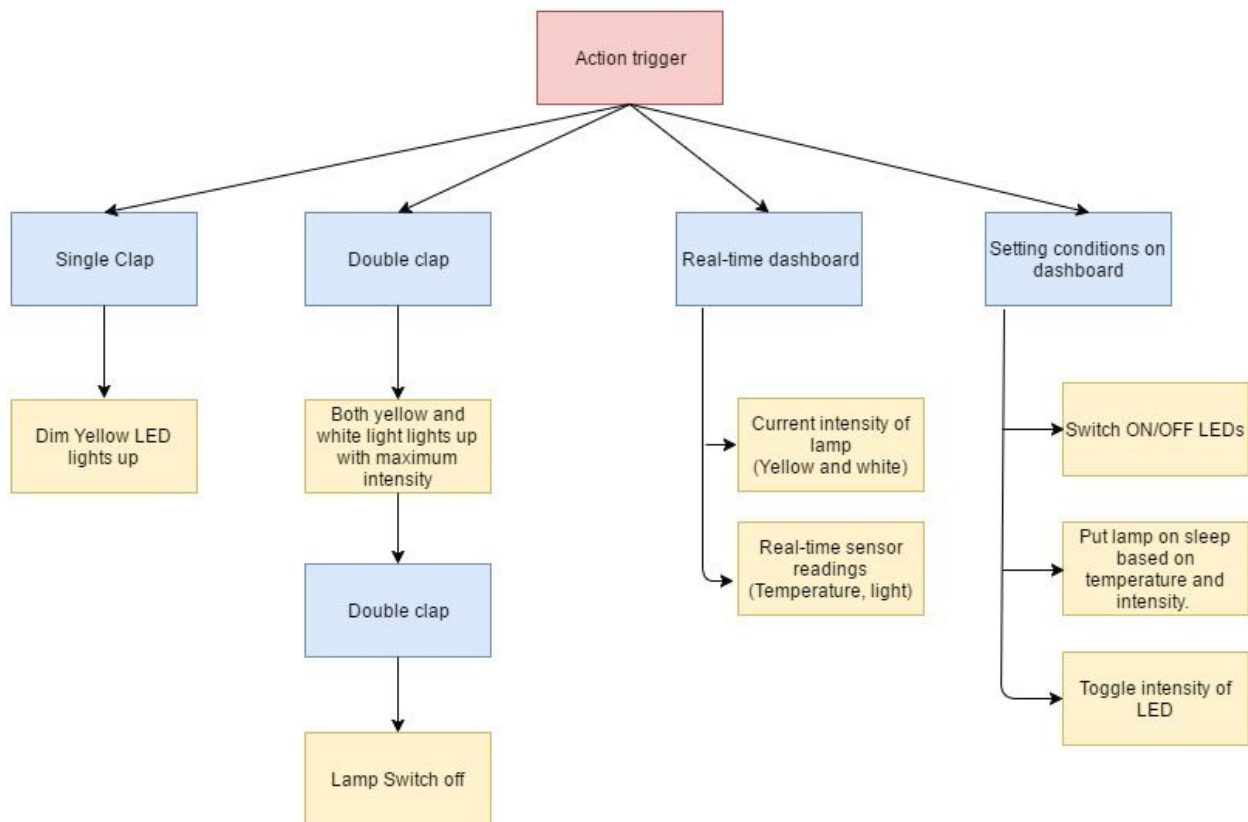
DOMAIN

Our smart lamp is designed to transform your study room into smart study room. This falls into the domain of smart homes, however can be extended to use cases for smart offices.

OBJECTIVE

Objective of this project is show proof of concept of picking up any generic lamp and implement a minimal arduino setup which bring some level of automation to the lamp switching based on environmental factors (such as Temperature Value, Light intensity in environment), hand gestures (such a clapping actions), or setting up condition triggers in the User Dashboard (made in Processing 3).

FLOWCHART



APPLICATIONS

Since lamps are general purpose, this setup can be applied to lamps kept anywhere in homes, offices etc. However, we, in this report specifically target usage of lamp in smart homes, and try to include parameters which a smart home user might find convenient.

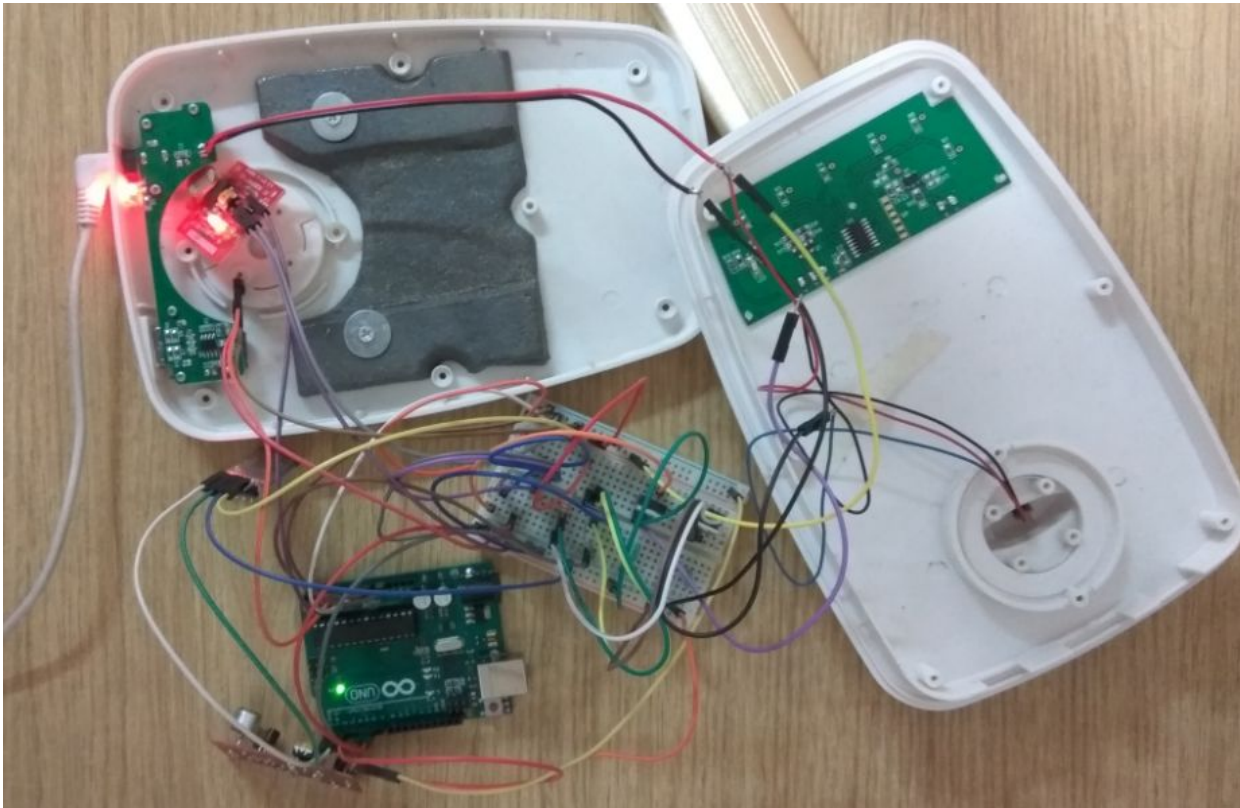
We aim to minimize manual actions by the user and aim at more automated approach in turning the lamp on/off or changing LED lights intensity (for eg: mood lighting based on time of the day and light intensity in the environment) and other use trigger actions highlighted in the flowchart above.

MATERIALS USED

COMPONENTS	QUANTITY
Arduino UNO	1
MOSFET(IRFZ44N)	2
Transistor(BC547)	2
Temperature Sensor	1
LDR Sensor	1
Sound Sensor	1
Half Breadboard	1
Jumper Wires	20-30
Resistors (2.2k ohm)	4
Resistors (10k ohm)	2

SNAPSHOTS

Circuit



Lamp



(OFF State)



(After single clap - Dim yellow light)



(After double clap - Full intensity both light)

Processing GUI

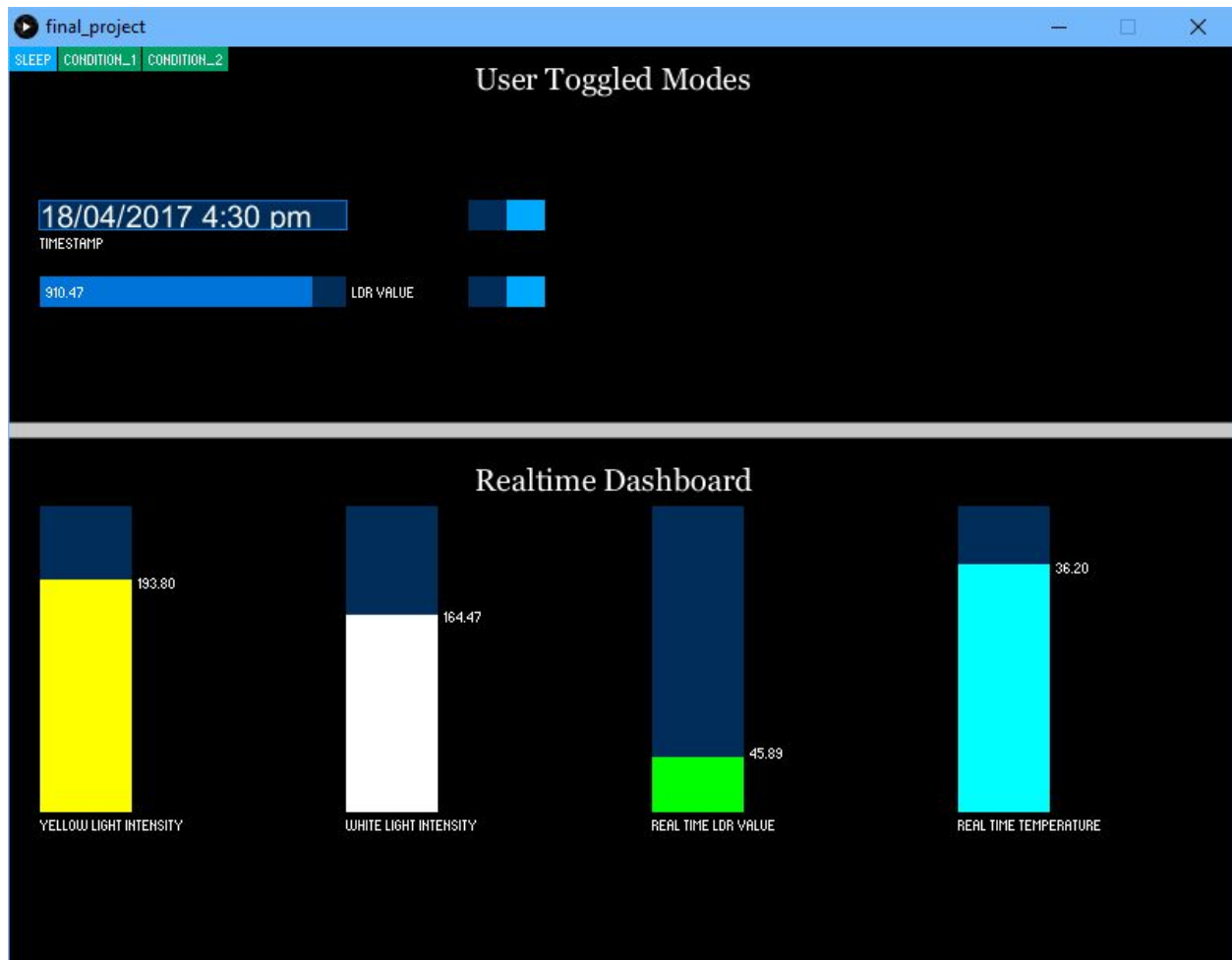
1. Setting Condition 1 triggers (for sometime in the afternoon)



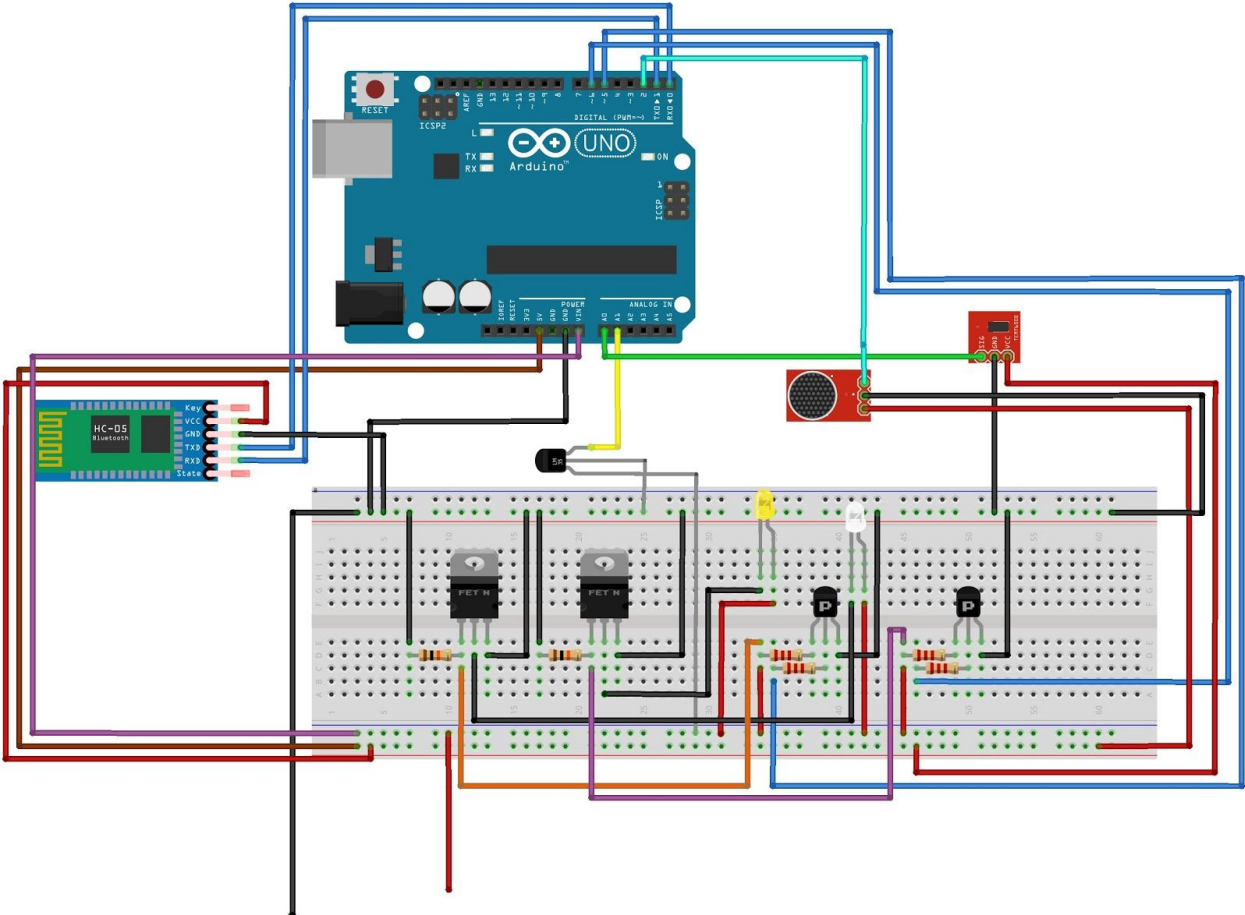
2. Setting Condition 2 triggers parallelly (for Night Time)



3. Sleep Tab (setting time and LDR triggers for switching off lamp)



BREADBOARD VIEW



fritzing

