Arduino Light Switch Flipper

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1 Introduction

This project focuses on creating a light switch flipper using Arduino. The micro-controller will process the IR codes provided by the remote (using the IR sensor) & command the motor to rotate a certain number of degrees to engage the switch. If the command was successfully executed, a message will appear on the LCD screen.

The idea behind this project is that when someone leaves the lights on after leaving your room, you can shut the lights off from across the room with ease.

1.1 Simplified block diagram

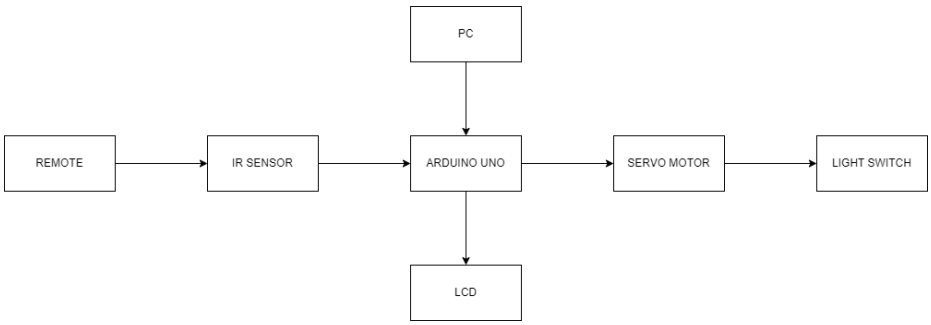

Fig. 1. Simplified block diagram

2 Implementation

2.1 Physical project

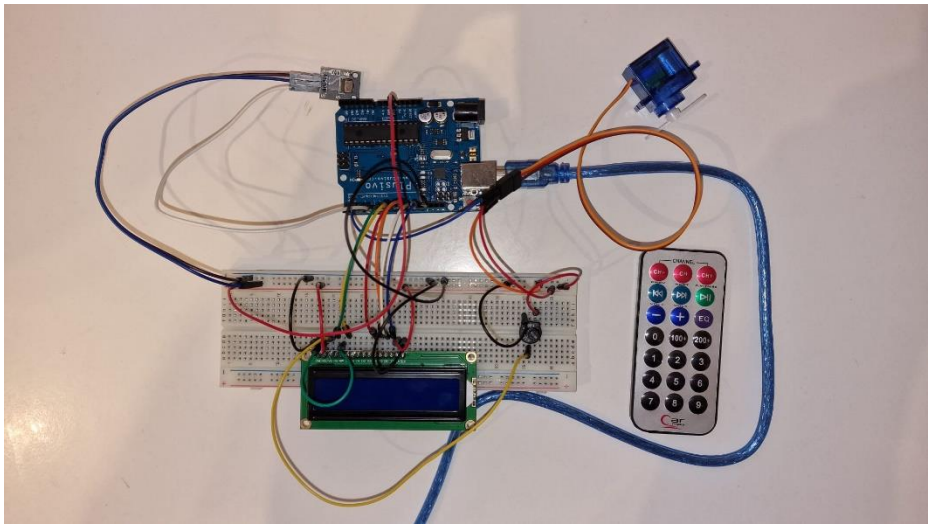

Fig. 2. Physical project

2.2 Modules used

- Arduino Uno (Plusivo Uno R3)
- IR sensor
- Remote
- LCD screen (LCD1602)
- Servo motor (SG90)
- 10k Ohm potentiometer
- M/M wires
- F/M wires

2.3 How it functions

We start the Arduino by plugging it in to our PC. The Arduino receives commands from the remote through the IR sensor. Once a command has been detected, we check whether the given command code is either VOL+ or VOL- and we rotate the servo accordingly. Once a command was executed successfully, a message is displayed on the LCD screen.

2.4 The logic behind

The full code running in the background is included in the zip file.

Summary:

1. Initialize all the required pins and variables
2. Setup the lcd & print a message when plugged in
3. If a signal is received, make the necessary rotation for the servo & display message

3 Bill of materials

This project was made using the modules from this kit : link.
I have tried to find the same or similar products and list them individually here:

Module	Quantity	Price (RON)	Supplier
Arduino Uno	1	44,99	Optimus Digital
IR Sensor	1	8,99	Optimus Digital
Remote	1	4,99	Optimus Digital
LCD Screen	1	14,99	Optimus Digital
Servo Motor	1	11,99	Optimus Digital
Potentiometer	1	0,99	Optimus Digital
M/M Wires	19	7,73	Optimus Digital
F/M Wires	3	24,95	Optimus Digital
Total		119,62	