EE356 – PROJECT PROPOSAL

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EE356: ELECTRONIC PRODUCT DESIGN

PROJECT PROPOSAL

TITLE: Electrical Timer plug socket

INTRODUCTION

Electrical timer plug socket is simply a timer that operates an electrical plug socket controlled by the timing mechanism. Electrical timer plug socket can be used for any device that is connected to an electrical outlet or plug socket; consisting of lights, televisions, pumps, air conditioners. Time plug sockets play an important role in 'smart home' technology. As an example, light timer plug socket can be used to control our home lights, especially street light and holiday bulbs.

Further using electrical timer plug sockets, we can

I. conserve power and money

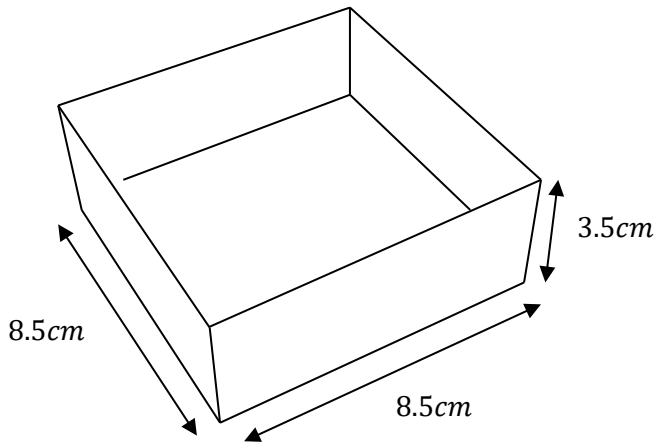
II. Set the device's operations at specific times.

III. Secure the lives and devices (Improve battery health performances in devices)

PRODUCT DESCRIPTION

Specification (proposed)

- BODY



- DEVELOPMENT PLATFORM Arduino NANO
- DISPLAY Seven Segment 4 digits display
- MISELLANEOUS Colors-white

FUNCTIONS

- Arduino manages LED Display
- Rotary encoder allows setting the required timer value
- Rotary encoder switch used to start the timer
- Timer can be paused with a press of switch.
- Second press resumes and Long Press ends the timer

LIMITATIONS

- Time limits

MARKET ANALYSIS

According to the market survey, some new products and new devices have inbuilt- electrical timers. But this feature varies from device to device and all the devices don't have in built electrical timers. The existing electrical timer switches in the market need to connect separately to the electrical wall plug socket in home. But our product is modified as an inbuilt electrical timer wall plug socket. So, any device which is plugged into our plug socket can be controlled according to a given time frame. So, there is good market for the product since it can be replaceable to any other plug socket in the home. Here is brief summary of pros and cons of the product we have designed.

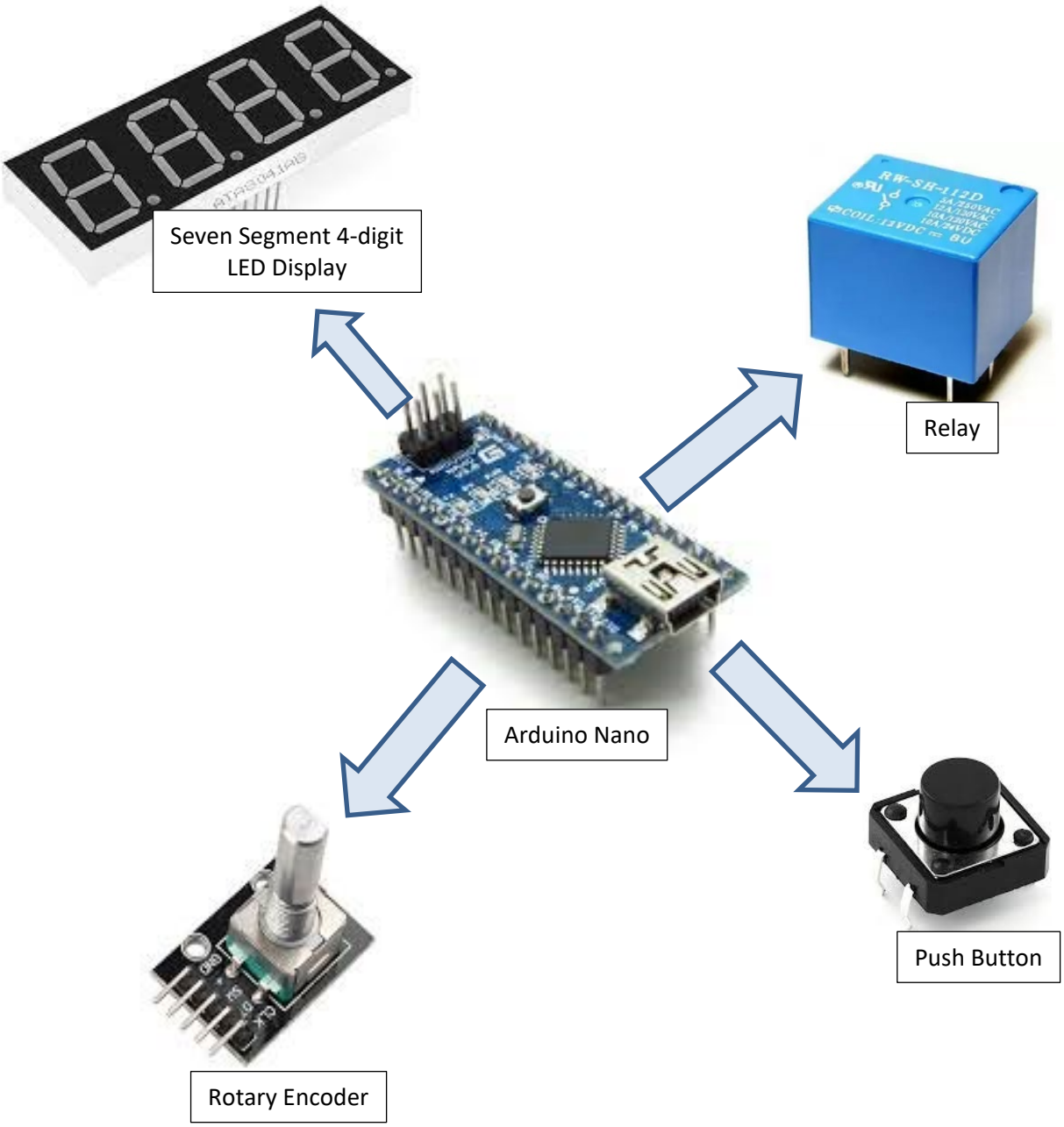
Pros

- Low cost
- User friendly

Cons

- Time limits

METHODOLOGY



Proposed Budget

Part	Unit cost	No. of units	Total cost
Arduino Nano	2500	1	2500
Rotary Encoder with Push Buttons	300	1	300
Electrical plug socket	800	1	800
relay	400	1	400
buzzer	400	1	400
Resistors, capacitors & Others	1000	-	1000
total			**5400**

Time Line

Task		October				November				December				January			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Chose the project idea	Identify 2/3 ideas & discuss among the group																
	Finalize the project idea																
Market Analysis																	
Prepare the project proposal																	
Basic project design & schematics																	
Buy hardware components									*MID SEMESTER EXAMINATION WEEK*								
Work on microcontroller programing part																	
Assemble the parts & test manually																	
Hardware design with PCB																	
Troubleshooting																	
Final implementation																	
Packing & Finishing																	