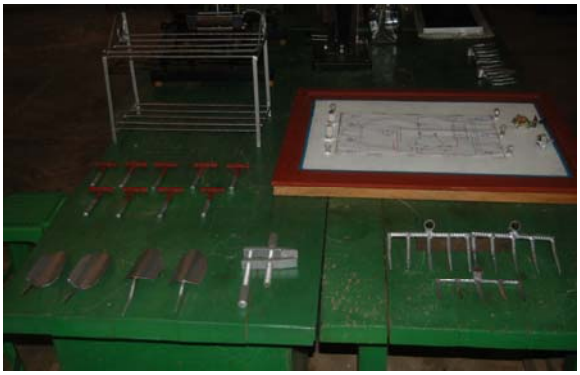
TECHNOLOGICAL UNIVERSITY (MAWLAMYINE)

MECHANICAL ENGINEERING DEPARTMENT

Sr. No.	Title	Type	Supervisor		level
1	Application of Practical Shop Processing	Applicable Products	Dr.Thandar Aung (lecturer)	U Htin Aung (demonstrator) U Ye Win Thein (demonstrator) U Tha Aung (demonstrator) U Win Hlaing (demonstrator)	AGTI 1st Year (MP/CNC)
2	Lighting System of an Automobile	Demonstration Model	U Aung Lwin Thein (lecturer)	U Aung Nyan Win(demonstrator)	AGTI 2nd year (MP)
3	Parallel Clamp	Applicable Equipment	U Zin Min Htun (lecturer)	U Soe Than Aung (Assistant lecturer) U Htin Aung (demonstrator)	AGTI 2nd year



Conducted by

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Lecturer & Head of Dept.

OBJECTIVE:

Main aim of the project is to have setting up experience on demonstration of lighting system for mortor vehicle by studying the basic components of lighting system and the operation of lighting circuit.

USEFULNESS:

Traffic regulations require every motor vehicle to be fitted with a correct lighting system. Lighting system is also important for automobile to drive safety at day or night. Unless lighting system has been used or insufficient components being applied, it will be very dangerous for vehicle. By demonstration set of lighting system for automobile may support much more knowledge of this system to the students who studying the concerning engineering subjects.

APPARATUS:

Types of lamps required are;

Headlamps
Tail lamps } **main components**
Side or Parking lamps
Stop lamp

Warning lamps
Fog lamps
Panel lamps and } **Accessories**
Interior illumination lamps

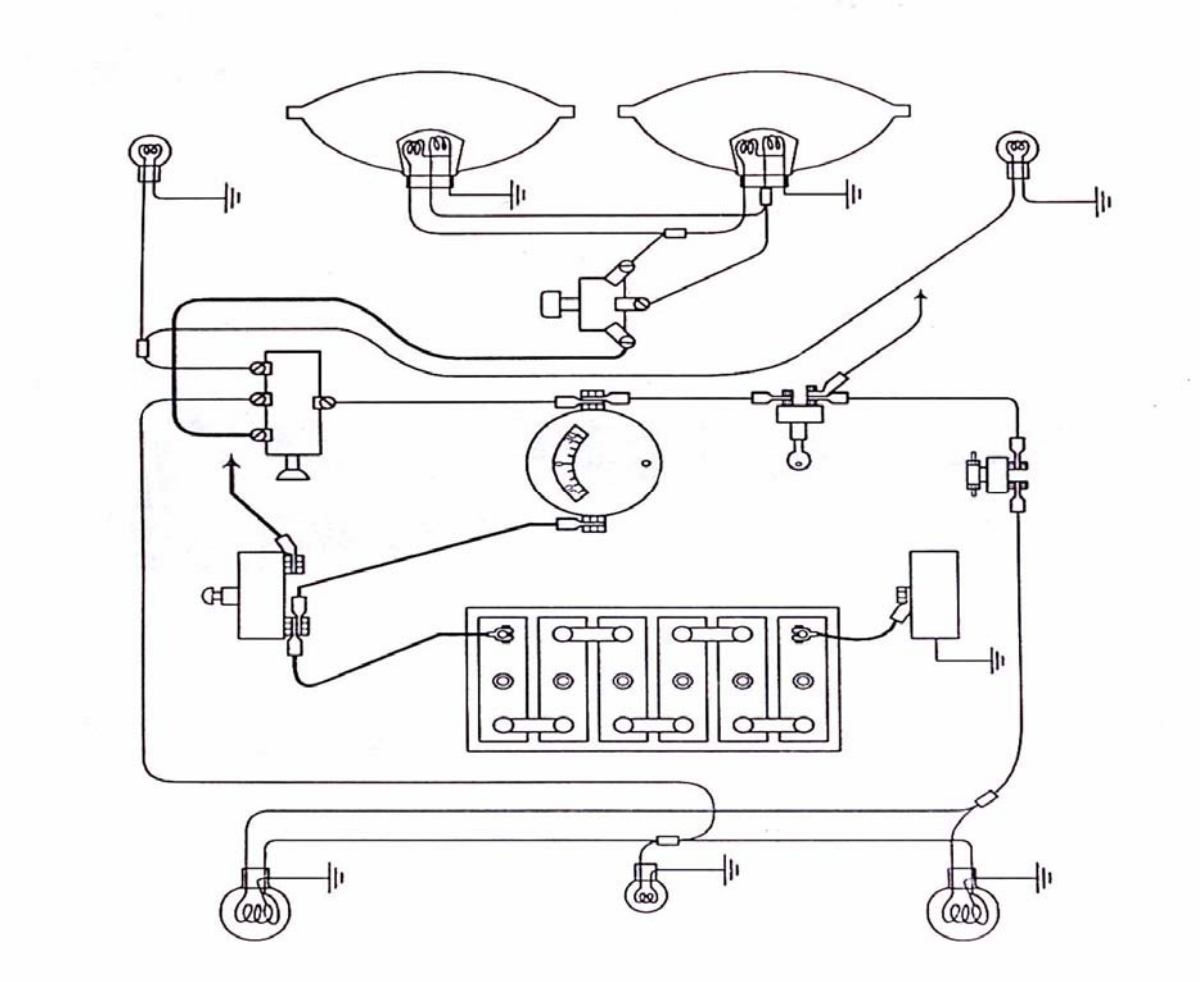
Types of switch constituted in the lighting system are:

Light switch
Dip switch
Stop light switch

CONSTRUCTION: (WORKING PROCEDURE)

- **Panel board is made of wood which have length (3 ½ ′) , wide (2 ½ ′) and thickness (¼″).**

- **Circuit diagram is drawn on the panel board.**



Complete Circuit Diagram

- **The set of apparatus is set up according to circuit on panel board.**
- **The apparatus is connected to wire. After the setting has been established, the circuit is connected to the battery.**
- **And then, the lighting system for an automobile which display on the panel board can be started for its demonstration.**

Some of the other components are not display on the demonstration model board due to cost factor. The following are the components' specifications:

Sr.No.	Components	No. Required	Specifications
1	Battery	1	12V
2	Head lamps	2	100 watt
3	Tail lamps	2	5 watt
4	Parking lamps	4	5 watt
5	Dip Switch	1	

6	Light Switch(panel)	1	

CHOOSING CABLE SIZE

CIRCUIT	CABLE SIZE SWG (size of wire gage)	MAXIMUM CURRENT CARRYING CAPACITY
Battery and generator main feeds	44/0.012	27.5 amps
Other main feeds	28/0.012	17.5 amps
Remaining circuits	14/0.010	6 amps
Starter circuits	37/0.036 61/0.036 61/0.044	According to circuit length and vehicle operating conditions

Firstly, it is calculated the current of head lamp and tail lamp. And the size of wire is selected from table by comparing the result of current.

OPERATION:

THE LIGHTING CIRCUIT SYSTEM CONNECTION

- **The battery is connected to the battery terminal of light switch. The light switch is connected to the dip switch including full terminal and dip terminal connected to the head lamp's each terminal respectively.**
- **Side terminal is connected to the side lamp or parking lamp.**
- **Tail terminal is connected to the tail lamp.**
- **The light switch control headlights, park side light, and tail lights.**
- **The dip switch enables the head light to be changed from dip to full beam, and vice versa, without affecting the park-light or the rear light.**

It should be noted that the stop lights will operate only when the ignition switch is on. Fuse is common practice to insert a fuse in the circuit of interior lights as on driving hazard is caused by the failure of fuse in these circuits.

SWITCH OPERATION

- **Naturally, during the right-driver, and in an emergency in the day-time, the full beam of the head-lamp must be used and the number two step of the light switch**

is on. When face with another vehicle, the dip beam is used so is not to dazzle the driver of that vehicle. Then the dip switch is used.

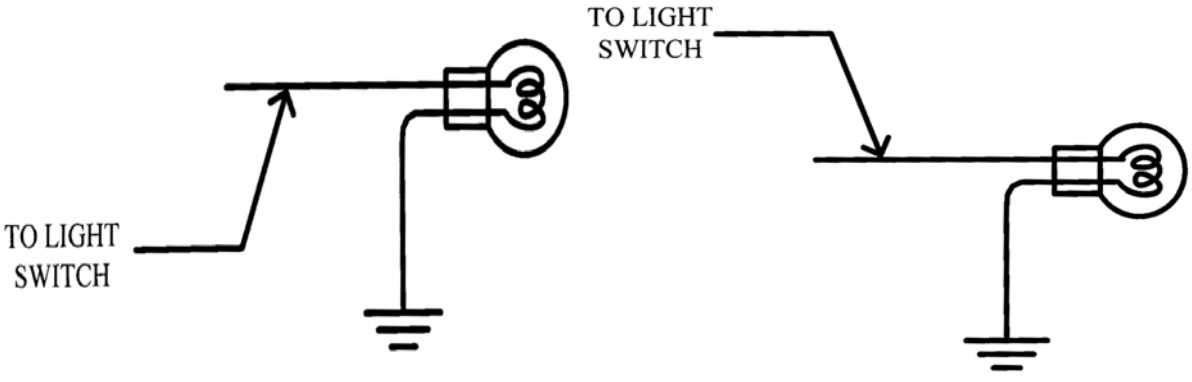
- **When the number one step of the light switch is on, the parking lamps, the tail lamps and the number plate lamps all light up at the same time.**
- **As soon as the ignition switch is on, the break lamps become operational and light up when the break are applied.**

HEADLAMP ALIGNING AND FOCUSING

Head lamps must be correctly focused and aligned if the driver is to have good road illumination in the right place without dazzling other road user. They are the following.

- **Front of vehicle to be square with screen.**
- **Vehicle to be loaded and standing on level ground.**
- **Recommended distance for setting at least 25 ft.**
- **For ease of setting one headlamp should be covered.**

CIRCUIT CONNECTION DIAGRAM



Parking Lamp

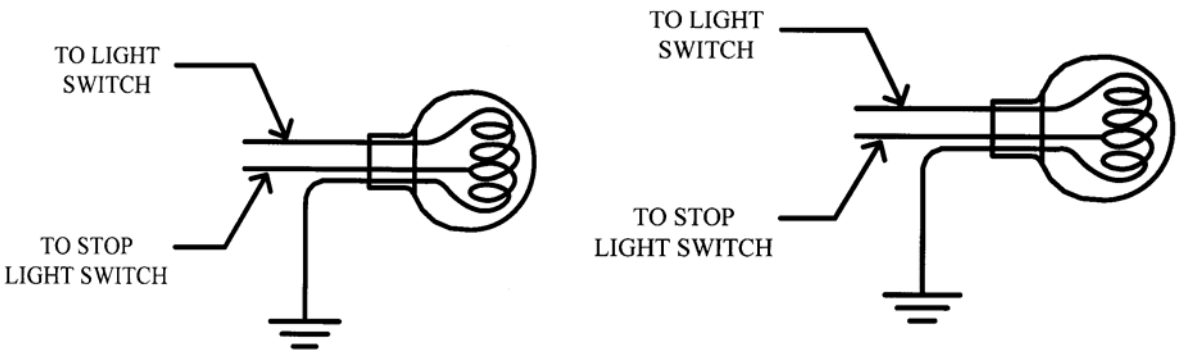


Fig. Stop and Tail lamps

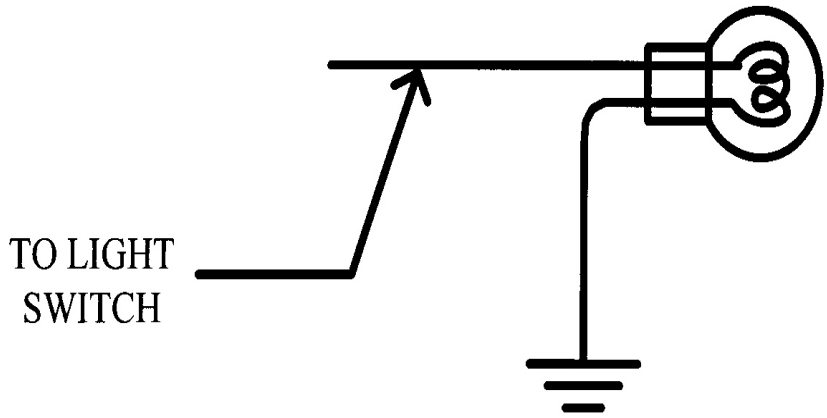
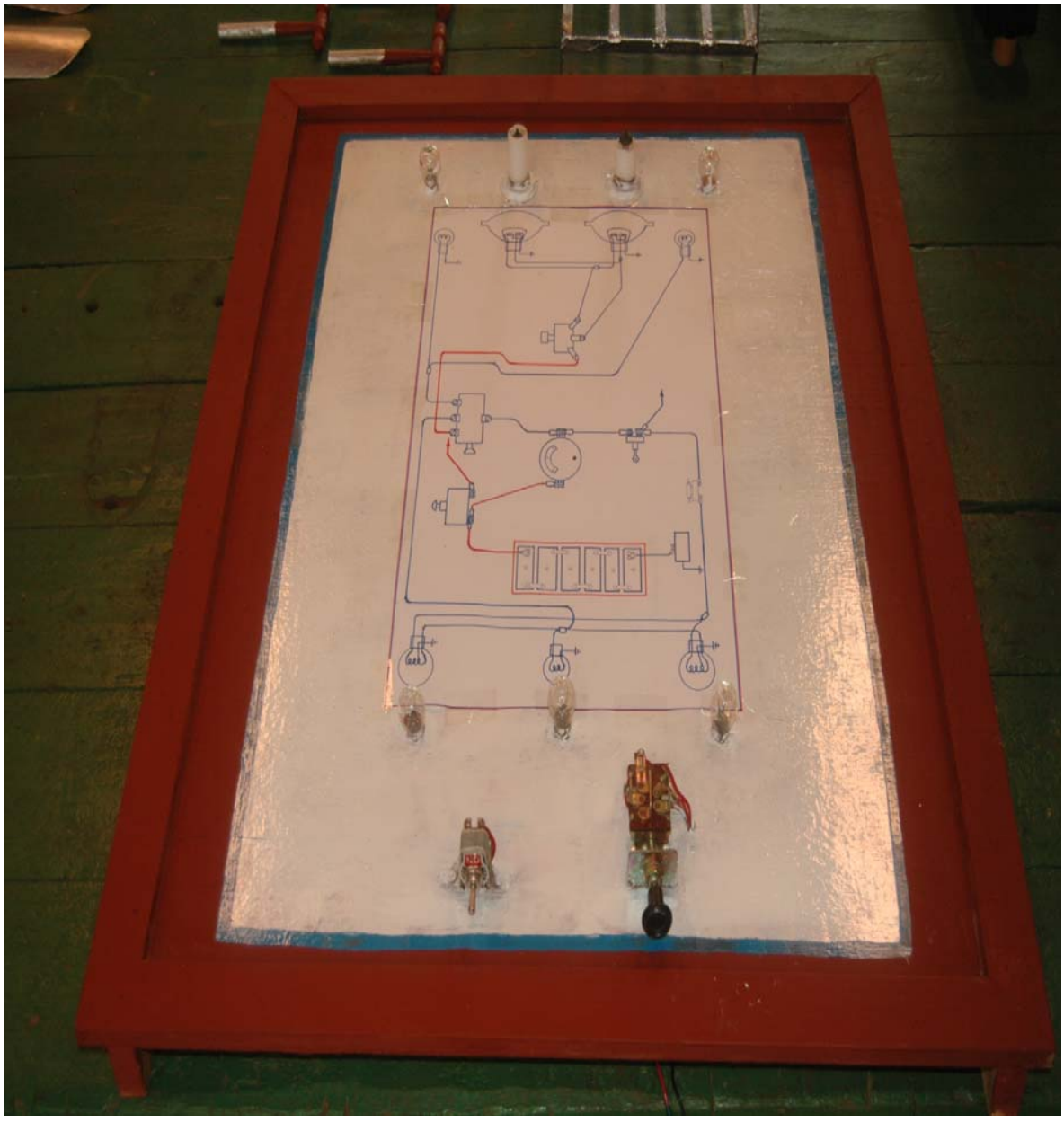
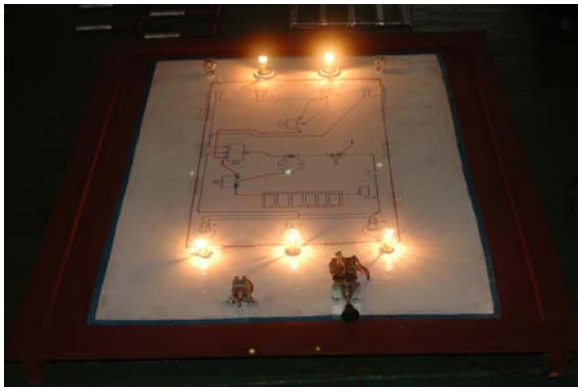
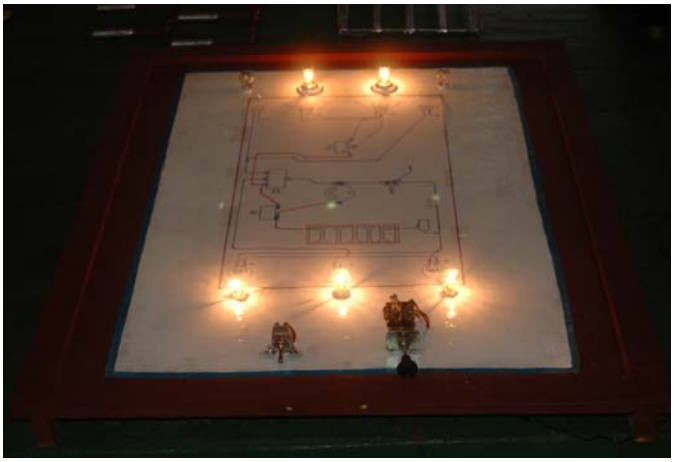


Fig.Number Plate lamp

PROJECT PHOTOGRAPHS







REFERENCES

1. J.A Dolan, AMSE, AMJED, 1996, Mortor Vehicle Technology and Practical Work Volume-1, lecture note in Mech. Eng: Dept., Ashton under Lyne College of Further Education Landon

2. R.E Owen, 1965, Electricity for Mortor Mechanics, Government Printer, Wellington, Newzeland.