PROJECT REPORT

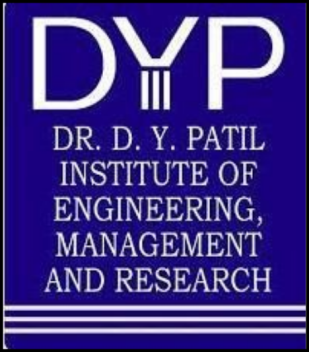
on

***Wireless charging power stations***

Project Based Learning Subject (PBL)

### Submitted By: -

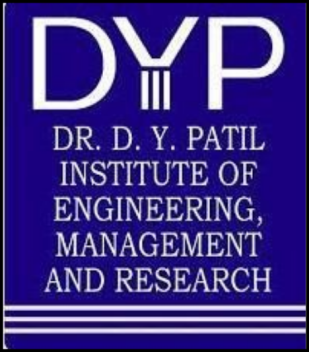
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| --- | --- |
| Name of Students | Exam Seat No |
| AMAY DUBEY  PRATIK GAIKWAD  SWAPNIL AWALE  EKNATH JAYBHAYE | 19142  19143  19144  19145 |
|  |  |
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Guided By:-

DEPARTMENT OF FIRST YEAR ENGINEERING

DR. D Y PATIL INSTITUTE OF ENGINEERING, MANAGEMENT AND RESEARCH SAVITRIBAI PHULE PUNE UNIVERSITY, PUNE 2019-2020

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### CERTIFICATE

This is to certify that the following students have satisfactorily carried out the First Year Engineering Project Based Learning project work entitled **“Title of Project ”**

This work is being submitted for the Project base learning Subject work completion of First Year Engineering. It is submitted in the partial fulfilment of the prescribed syllabus of Savitribai Phule Pune University, Pune for the academic year 2019-2020.

|  |  |
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| **Name of The Student** | **Examination Seat No** |
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|  | Dr Vandana B Patil | Mrs Kavita Joshi |
| Guide | PBL Coordinator | H.O.D. |

|  |  |
| --- | --- |
|  | Dr. Mrs. A. V. Patil |
|  | Principal |

## ACKNOWLEDGEMENT

It gives immense pleasure in bringing out this synopsis of the project entitled **Title of Project”**.

However, it would not have been possible without the kind support of our project guide and college. We would like to extend our sincere thanks to them.

We are highly indebted to **Guide Name** for his guidance and constant supervision as well as to **Mrs Kavita Joshi (H.O.D FE)** and **Dr. Mrs. A.V. Patil (Principal)** for providing necessary information regarding the project and for their support in completing the project. We would like to express our gratitude towards members of DYPIEMR for their kind co-operation and encouragement, which helped us in completion of this project.

With Sincere Thanks

Student Names

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* EKNATH JAYBHAYE (19145)
* SWAPNIL AWALE (19144)
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# ABSTRACT

Electrified transportation will help to reduce [green-house gas](https://www.sciencedirect.com/topics/engineering/greenhouse-gas) emissions and increasing petrol prices. Electrified transportation demands that a wide variety of charging networks be set up, in a user-friendly environment, to encourage adoption. Wireless electric vehicle charging systems (WEVCS) can be a potential alternative technology to charge the electric vehicles (EVs) without any plug-in problems. This paper outlines the current available [wireless power transfer](https://www.sciencedirect.com/topics/engineering/wireless-power-transfer) technology for EVs. In addition, it also includes wireless transformer structures with a variety of [ferrite](https://www.sciencedirect.com/topics/materials-science/ferrite) shapes, which have been researched. WEVCS are associated with health and safety issues, which have been discussed with the current development in international standards. .

**Keywords:**

* Electric vehicles
* Electromagnetic compatibility
* Finite element method
* Wireless charging system
* Wireless power transfer
* Wireless electric vehicle charging system

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**CHAPTER 01: INTRODUCTION**

## INTRODUCTION

Wireless Charging Systems (WCS) have been proposed in high-power applications, including ev’s ,in stationary  applications. In comparison with plug-in charging systems, WCS can bring more advantages in the form of simplicity, reliability, and user friendliness . The problem or limitation associated with WCS is that they can only be utilised when the car is parked or in stationary modes, such as in car parks, garages, or at traffic signals. In addition, stationary WCS have some challenges, such as electromagnetic compatibility (EMC) issues, limited power transfer, bulky structures, shorter range, and higher efficiency. In order to improve the two areas of range and sufficient volume of battery storage, dynamic mode of operation of the WCS for EVs has been researched. This method allows charging of battery storage devices while the vehicle is in motion. The vehicle requires less volume of expensive battery storage and the range of transportation is increased. However, a dynamic WCS has to face two main hurdles, large air-gap and coil, before it becomes widely accepted. The power transfer efficiency depends on the coil alignment and air-gap distance between the source and receiver. The average air-gap distance varies from 150 to 300 mm for small passenger vehicles, while it may increase for larger vehicles.

## PROBLEM STATEMENT

## Lots of man power is wasted in power stations to charge the EVs. Also power stations have shortage in india.

## Also power stations require more space for their construction.

## OBJECTIVES

**1. To make forward the evolution of fuel.**

**2. Researching on the pros and cons of wireless stations.**

**3. basic of compact space.**

## SCOPE OF PROJECT WORK

1. Less man power is required. As the system is automatic does not require pump operator . to fill the fuel.

2. less space required. Wireless charging stations can be very compact and can be fit into . . . small spaces.

3. time efficiency. Wireless power stations works on the principle of mutual induction.

Less time is required to charge the battery of the car.

**CHAPTER 2: LITERATURE REVIEW**

## Literature review

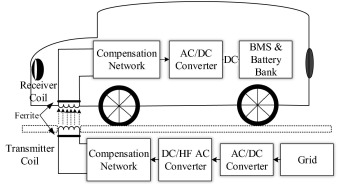
| **Features** | **Series-Series (SS)** | **Series-Parallel (SP)** | **Parallel-Series (PS)** | **Parallel-Parallel (PP)** |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
| Power transfer capability | High | High | Low | Low |
|  |  |  |  |  |
| Sensitivity of power factor  over distance | Less | Less | Moderate | Moderate |
|  |  |  |  |  |
| Alignment tolerance | High | High | Moderate | Low |
|  |  |  |  |  |
| Impedance at resonant state | Low | Low | High | High |
|  |  |  |  |  |
| Frequency tolerance on  efficiency | Low | High | Low | High |
|  |  |  |  |  |
| Suitable for EV application | High | High | Moderate | Moderate |

# CHAPTER-3: EXPERIMENT STUDY (if Any)

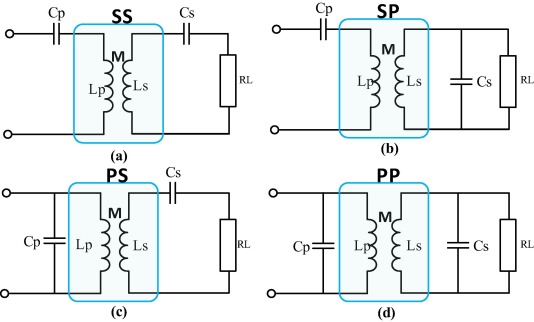
## Introduction

## Materials and Methods

### Circuit diagram of EV’s:



2. **Circuit Diagram of coils:**



**3.3.2Experimental Figure**

### Planning of experiment

1. **Startup phase**

### Established phase

## PARAMETERS FOR ANALYSIS

# CHAPTER – 04: METHODOLOGY

## Methodology

Identification of problem

literature review

Defining scope of project work

Deciding objective

Identification/Selection and procurement(Media, Vegetation, Electrodes and separators)

Planning of experiment study

Construction of laboratory setup

Performance evaluation of developed setup by analyzing different parameters

Results and discussion

Conclusion

# CHAPTER 5: REFERENCES AND BIBLIOGRAPHY

## REFERENCES AND BIBLIOGRAPHY

* [**www.google.com**](http://www.google.com)
* [**www.sciencedirect.com**](http://www.sciencedirect.com)
* **Basic electrical engineering textbook**
* **Systems in mechanical engineering textbook**