

# JB Institute of Engineering & Technology



# TECHTRONICS

June 2017

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Electronics & Communication  
Engineering

Technical Magazine

# Technical Magazine

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## **Editors:**

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*Best Complements*

*from*

*The Dept. of*

*ECE*

## **Message from the Desk of Principal**

I am very much pleased to see the keen interest and devotion of the students of ECE, JBIET towards the publication of the Department technical magazine. This is an indicator of the communication skills of the students, which is rising day-by-day. And the way students are putting across this message to the reader shows that their communication skills are raising. TECHTRONICS is a magazine that provides you with everything you need to know.

Our college is one, that strives for excellence in every field, with academics, sports, cultural or co-curricular activities. It is true that your academic performance matters the most you go for an interview, but when you furnish details of how much you have participated in co-curricular activities, apart from your academics may impress the interviews. So build your communication skills and vocabulary by participating in co-curricular activities.

Here, wishing all the happy reading.

**Dr. Towheed Sultana**  
**Principal, JBIET**

## Message from the Desk of HOD

I am very glad to see my students dedicated for the issue of the TECHTRONICS magazine. Through this edition, I want my students to know about the present scenario. As it is month of exam pressure, I am feeling proud that the students discussed about how to overcome examination fever and to prepare for the exams.

I am feeling glad that my students have taken social responsibilities throughout the year.

Finally, I convey my wishes to all the students for their upcoming examinations.

Dr. S. Ibrahim Sadhar  
HOD, ECE

## Stress Management

Stress can come from many sources, which are known as "stressors." Because our experience of what is considered "stressful" is created by our unique perceptions of what we encounter in life (based on our own mix of personality traits, available resources, habitual thought patterns), a situation may be perceived as "stressful" by one person and merely "challenging" by someone else.

Simply put, one person's stress trigger may not register as stressful to someone else. That said, certain situations tend to cause more stress in most people and can increase the risk of burnout. For example, when we find ourselves in situations where there are high demands on us; where we have little control and few choices; where we don't feel equipped; where we may be harshly judged by others; and where consequences for failure are steep or unpredictable, we tend to get stressed.

Because of this, many people are stressed by their jobs, their relationships, their financial issues, health problems, and more mundane things like clutter or busy schedules. Learning skills to cope with these stressors can help reduce your experience of stress.

Stress can be effectively managed in many different ways. The best stress management plans usually include a mix of stress relievers that address stress physically and psychologically and help to develop resilience and coping skills.

The following are some effective stress management techniques, we should consider making us stress free.

### Use quick stress relievers

Some stress relief techniques can work in just a few minutes to calm the body's stress response. These techniques offer a "quick fix" that helps you feel calmer at the moment, and this can help in several ways. When your stress response is not triggered,

you may approach problems more thoughtfully and proactively. You may be less likely to lash out at others out of frustration, which can keep your relationships healthier. Nipping your stress response in the bud can also keep you from experiencing chronic stress.

Quick stress relievers like breathing exercises, for example, may not build your resilience to future stress or minimize the stressors that you face, but they can help calm the body's physiology once the stress response is triggered.

### **Develop stress-relieving habits**

Some techniques are less convenient to use when you are in the middle of a stressful situation. But if you practice them regularly, they can help you manage stress in general by being less reactive to it and more able to reverse your stress response quickly and easily.

Long-term healthy habits, like exercise or regular meditation, can help to promote resilience toward stressors if you make them a regular part of your life.<sup>3</sup>

Communication skills and other lifestyle skills can be helpful in managing stressors and changing how we feel from "overwhelmed" to "challenged" or even "stimulated."

### **Eliminate stressors when you can**

You may not be able to completely eliminate stress from your life or even the biggest stressors, but there are areas where you can minimize it and get it to a manageable level. Any stress that you can cut out can minimize your overall stress load. For example, ending even one toxic relationship can help you more effectively deal with other stress you experience because you may feel less overwhelmed.

Dr. V.V. Rao  
CEO, JB Group

## **Student Article**

# **Introducing electrified roads to decrease the use of Fuel combustion vehicles and the lesser requirement of Electric vehicle charging systems**

**Nandu Voore**

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### **ABSTRACT**

A growing awareness of environmental protection and energy conservation are forcing the development of electric vehicle technology. Electricity is more than just another means of powering the vehicle. The electric vehicle requires an energy storing system and electric vehicle charging stations which is one of the concerns of today's electric vehicle technology. Batteries are the energy storage means for electric vehicles. Specific energy and specific power of electrochemical batteries are generally much smaller than those of gasoline. A number of charging schemes like home charge, regenerative charge, park and charge etc. have already been in existence, but the idea of electrified roads is much easier to use instead of establishing many of electric vehicle charging stations, which involves a lot of time.

### **IDEA IN DETAILS**

Global warming one of the most commonly heard word among people but not put into practice to reduce it by many. In today's world of increasing population and



increasing human wants they are accounting for global warming, by means of vehicles, factories and many more. The use of fueled motor vehicles is the one which alone contributes to polluting the atmosphere by the emission of particulate matter (PM), nitrogen oxides (NO<sub>x</sub>), and volatile organic compounds (VOCs). The only step to reduce the pollution by satisfying the human needs is to improvise the use of electric vehicles.

The major problem for using of the electric vehicles is the potential for the installation of electric vehicle charging stations. To minimize the time being invested in charging the electric vehicle at the charging stations, idea of electrified roads have come into existence.

## **PROBLEM STATEMENTS**

### **1. Toxic emissions leading to air pollution and global warming.**

The emission from electric vehicles alone contribute to a large amount of toxic emission into the atmosphere. These all account for direct emissions. According to the surveys conducted, in recent times fuel vehicles alone constitute to nearly 60% of atmospheric air pollution.

### **2. Leading To Premature Deaths**

A study, by researchers from the International Council on Clean Transportation (ICCT), George Washington University, and the University of Colorado Boulder in the US, estimates that vehicle tailpipe emissions were linked to about 361,000 premature deaths from ambient PM<sub>2.5</sub> and ozone worldwide in 2010 and about 385,000 in 2015.

### 3. Fueled Vehicles Being More Cost Efficient Than Electric Vehicles

Considering the total cost of transportation as constant i.e. Rs. 5000, the table below shows the range can be achieved by all the three types of vehicles. Unit cost of petrol, diesel and electricity is assumed as Rs. 75/ltr, Rs. 60/ltr and Rs.

<b>Fuel/Data</b>	<b>Petrol</b>	<b>Diesel</b>	<b>Electricity</b>
<b>Cost/Liter</b>	Rs.75	RS.60	Rs.5.75
<b>Cost/Liter</b>	64 Ltr.	83 Ltr.	870 kwh

5.75/kwh. For EV, Nissan Leaf specification is referred, (121 km/24 kWh) with total discharge up to 20%. For ICE vehicles the mileage is taken as 20 kmpl for both petrol and diesel.

With Rs. 5000, 67 liters of petrol, 93 liters of diesel and 870 kWh of electricity can be consumed. From that the maximum range per year can be calculated. Considering

diesel range i.e. 20000 km/year as reference, petrol doesn't even reach that range and the

<b>Range/Month</b>	1333km	1667km	3626km
<b>Range/Day</b>	44km	66km	121km
<b>Range/year</b>	16000km	20000km	43478km

clear winner is electric with an excess range of 23247 km/year, which is equivalent to a saving of Rs. 32700/year. The excess investment in buying an electric car can be

easily recovered within couple of years of fuel saving. Otherwise the cost of environment is now more of concern then the cost of fuel.

#### 4. Estimation Of Life Cycle Emissions And Costs

The methodology for estimating societal and consumer LCC of urban light duty vehicles is summarized in Figure 1.

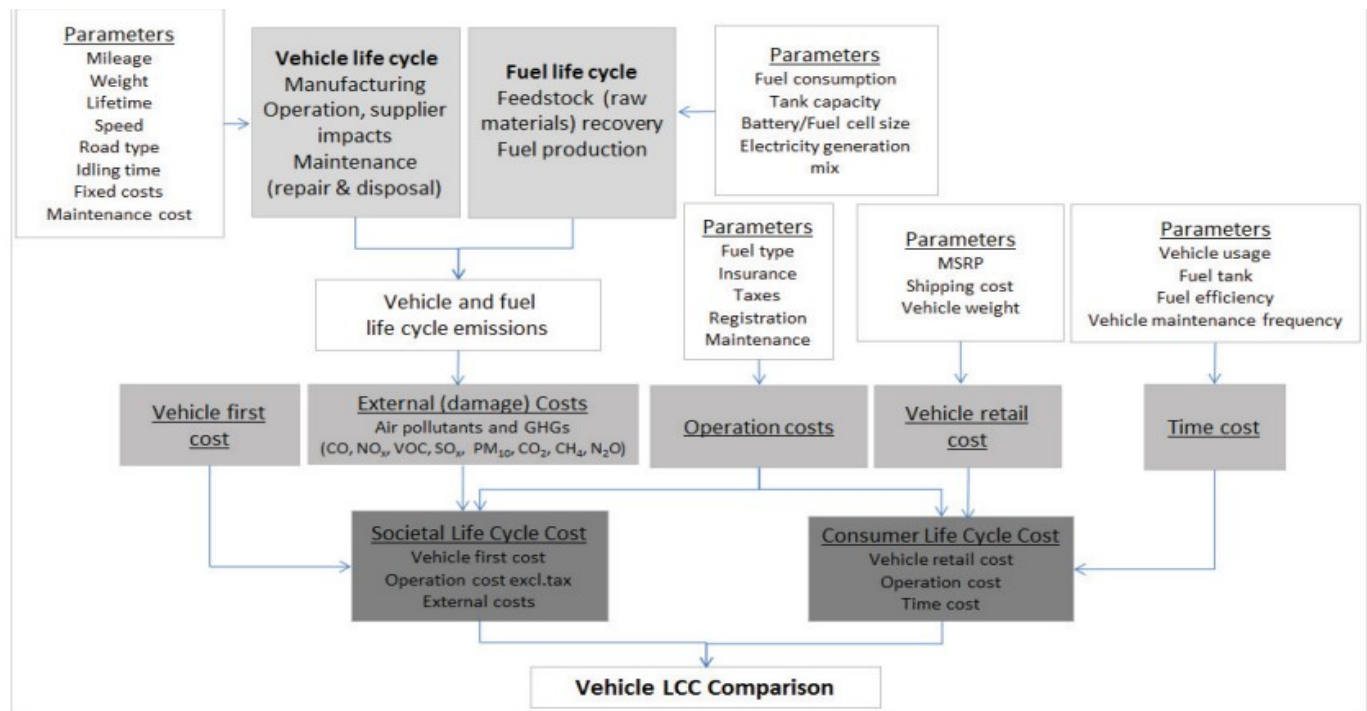


Figure 1. Methodology for estimating societal and consumer life cycle costs

#### 5. Few Charging Station's Available

As a new introduction to the market there're very few charging stations available, causing a lot of time in the process as shown.

**Navigation Map >>Location Track>> Charging Stations>> Charger Type>> Waiting Time Slot Booking**

Due to this problem many people back off for use of electric vehicles. Many people show interest for more comfortable way and more number of ways available for them in the market. To minimize this problem we can electrify roads so that the time being invested in charging can be minimized to a large extent.

### **IMPORTANT CRITERIA OF THIS IDEA FOR TODAY'S WORLD**

In today's world of many intellectual and innovative ideas running through the mind of younger generation it's our responsibility to provide a better future for our younger generation with a clean and serene atmosphere.

The idea and use of electric vehicles has greatly inspired the people for using an eco friendly means of transport. But the main problem is the time required for charging vehicles. As there are no large number of charging stations available as compared to fuel stations it's raising a concern among the customers. To avoid this problem the idea of electrifying the roads by means of coils installed on a layer beneath the road provides a much greater chance to minimize the time and to encourage the customers for the ease of access being provided in it. In many metropolitan cities time plays a major role in their day to day activities. Due to the only option available to them is the use of fueled motor vehicles causing a lot of atmospheric pollution. Thus from my idea of electrifying roads provides them a best alternative in two aspects that is reducing pollution and cost being invested thus making life more comfortable.

## CREATIVITY

The creative process is the act of making new connections between old ideas or recognizing relationships between concepts.

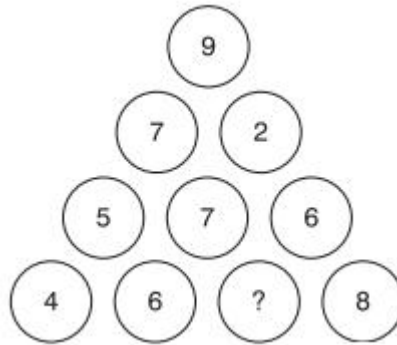
While we often think of creativity as an event or as a natural skill that some people have and some don't. All of this to say, claiming that *"I'm just not the creative type"* is a pretty weak excuse for avoiding creative thinking. Certainly, some people are primed to be more creative than others. However, nearly every person is born with some level of creative skill and the majority of our creative thinking abilities are trainable.

In any creative endeavor, you have to give yourself permission to create junk. There is no way around it. Sometimes you have to write 4 terrible pages just to discover that you wrote one good sentence in the second paragraph of the third page. If you want to do your best creative work, then don't leave it up to choice. You just need to prove to yourself that you have what it takes to produce something. Stop debating what you should make and just make something. You have to practice enough self-compassion to not let self-judgment take over. Share your work publicly. It will hold you accountable to creating your best work. The world needs people who put creative work out into the world.

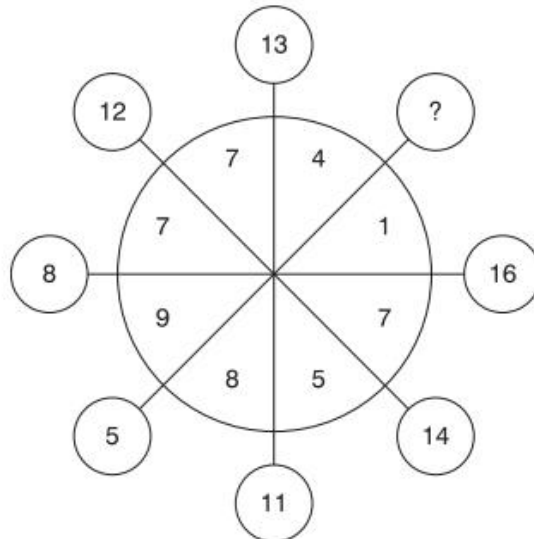
Finding your creative genius is easy: do the work, finish something, get feedback, find ways to improve, show up again tomorrow

## Number Puzzles

1. What number should replace the question mark?



2. What number should replace the question mark?



3. What number should replace the question mark?

			14	
	22			
			34	
41				
		53		?

4. If A is substituted by 4, B by 3, C by 2, D by 4, E by 3, F by 2 and so on, then what will be total of the numerical values of the letters of the word SICK?

5. Two Fathers and Two Sons Riddle

Two fathers and two sons sat down to eat eggs for breakfast. They ate exactly three eggs, each person had an egg. The riddle is for you to explain how.

6. A cuboid shaped wooden block has 6 cm length, 4 cm breadth and 1 cm height.

Two faces measuring 4 cm x 1 cm are coloured in black.

Two faces measuring 6 cm x 1 cm are coloured in red.

Two faces measuring 6 cm x 4 cm are coloured in green.

The block is divided into 6 equal cubes of side 1 cm (from 6 cm side), 4 equal cubes of side 1 cm (from 4 cm side).

How many cubes will have green colour on two sides and rest of the four sides having no colour ?

A) 8

B) 24

C) 16

D) 4

## What is Education



Swami Vivekananda

- Education is the manifestation of the perfection already in man.
- The training by which the current and expression of will is brought under control and become fruitful is called education.
- [Education] may be described as a development of faculty, not an accumulation of words, or, as a training of individuals to will rightly and efficiently.
- Real education is that which enables one to stand on his own legs.
- If you have assimilated five ideas and made them your life and character, you have more education than any man who has got by heart a whole library.

