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New conceptual Reduction  
device for fuel

LOXCAR



DINETT Co., Ltd

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**Loxcar**

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What is LOXCAR?

# What is LOXCAR?

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- ❖ Loxcar is the new conceptual reduction device for fuel that increased the output and decreased the fuel consumption by improving the performance of battery through the alternator control, i.e. vehicle generator, and uniform charging.
- ❖ Loxcar helps driver's safety by alarming with voice when dioxide is excess the concentration limit by measuring the air state inside vehicle with the measuring sensor of dioxide.
- ❖ Loxcar is warning the failure of electricity and need of ventilation by installing the display window of LED, and 6 steps of voice alarming system, and 2 color round LED lamp, and it can be mounted any vehicle having 12V regardless of gasoline, gas diesel engine.
- ❖ Loxcar is the custom-familiar product that the install process is completed when connecting the product to the cigar jack by using up-to-date IC Chip without separate installing action, and is good to the Interior product due to small size and fine design.

# Features of LOXCAR

## Simple install

While most the reduction device for fuel shall be connected to electric system or fuel supply system, Loxcar is install by connecting to cigar jack.

## Up-to-date Technology

Loxcar become a small size and sharply reduced in prices by controlling the whole operation of product from IC Chip by using up-to-date electronic control algorithm.

## Reduce the fuel cost Improve the output

Loxcar is the up-to-date electronic product that the reduction of fuel cost and improvement of the output is maximized by using the uniform charging principle of battery and the voltage control technique.

## Safe driving

Loxcar help the safe driving by alarming the warning message for the ventilation and sleepy driving by using LED and voice according to the pollution degree inside vehicle.

# Effect of LOXCAR

Reduce the fuel cost

- ❖ Reduce the fuel cost by max. 33.4%
- ❖ Prevent the battery age and extend the life of battery
- ❖ Reduce the exhaust gas
- ❖ Prevent the engine age and extend the life of engine

Improve the output

- ❖ Improve the output of engine
- ❖ Reduce the noise of vehicle
- ❖ Improve the output of air conditioner and heater, etc.
- ❖ Reduce the shifting shock of auto transmission

Safe driving

- ❖ Install the Sensor for measuring dioxide (product of HEIMANN, in German,)
- ❖ Warning message according to the concentration of dioxide (voice/LED)
- ❖ Warning message according to the voltage state of vehicle (voice/LED)

# Appearance of LOXCAR

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# Compare with competitor

Section	Consumer price	Features	Remarks
Loxcar		<b>Connect to the cigar jack</b> Auto control of alternator and battery voltage	No cost for installing
A product	150,000 won	<b>Mount to the battery of vehicle</b> Improve the performance by melting the contamination of battery	Separate cost for installing
B product	660,000 won	<b>Connect to the injector line of bonnet</b> Change ECU by driving pattern	Separate cost for installing
C product	420,000 won	<b>Connect to the alternator of bonnet</b> Use the vibration energy of acceleration electron	Separate cost for installing
D product	300,000 won	<b>Mount to the inside of fuel hose</b> Use the magnetic field	Separate cost for installing
E product	190,000 won	<b>Connect to ECU</b> Method of controlling ECU	

# Install Method of LOXCAR

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- ❖ Remove the contamination of place for mounting Loxcar.
- ❖ Remove the back side tape of rubber magnetic plate, and mount the rubber magnetic plate, and then put Loxcar on that.
- ❖ Connect power supply terminal of Loxcar body to DC plug of cigar jack.
- ❖ Connect the plug of cigar jack to the cigar jack of vehicle, and finish.
- ❖ Install successfully when starting and hearing the voice “Ding-dong-dang!  
Drive safely with Loxcar!”

If Loxcar is install successfully, in case of starting, you can hear the voice “Ding-dong-dang! Drive safely with Loxcar!” and indicate the operation indicator as blue and red repeatedly.



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# Vehicle Electricity Equipment

# Electricity Equipment

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## 1. Overview

- ❖ To manufacture a vehicle, it is required for the parts of about 20,000 ~ 30,000, and more than 5,000 parts of these are required for the electricity.
- ❖ We tend to think that parts such as lamp and etc. is using the electricity, but, actually, the electricity is using when pressing the acceleration pedal and break.
- ❖ And the thought that the battery supplies the electricity to these parts is a mistake.
- ❖ The battery supplies the electricity to these part only when using the electricity before starting and operating the start motor in case of starting, and the electricity after starting is supplied mainly by alternator, i.e., generator for vehicle.

# Electricity Equipment

## 2. Consumption of Main electricity Equipment

Continuous operation system and load	Long time load	Short time load	
Ignition 20W	Car radio 10-15W	Turn light 21W each	Fog light 35-55W each
	Car width lamp 4W each	Break lamp 18-21W each	Window heat line 120W
		Back driving lamp 21-25W each	
Electrical fuel pump 50-70W	Gauge lamp 2W each	Interior light 5W each	Wiper 60-90W
	Number lamp 10W each	Auto door 150W	Operation electromotor 800-3000W
	Parking lamp 3-5W each	Pan motor for heater 80W	Headlight washer 60W
Electronic control gasoline injection 70-100W	Upper headlight 60W each	Additional driving lamp 55W each	Cigar lighter 100W
	Tail light 5W each	Additional break lamp 21W each	Horn 25-40W each
	Lower headlight 55W each	Auto antenna 60W	Electric radiator Pan 200W
	Heater 20-60W each	Rear wiper 30-65W	Preheating plug of diesel vehicle 100W each

# Electricity Equipment

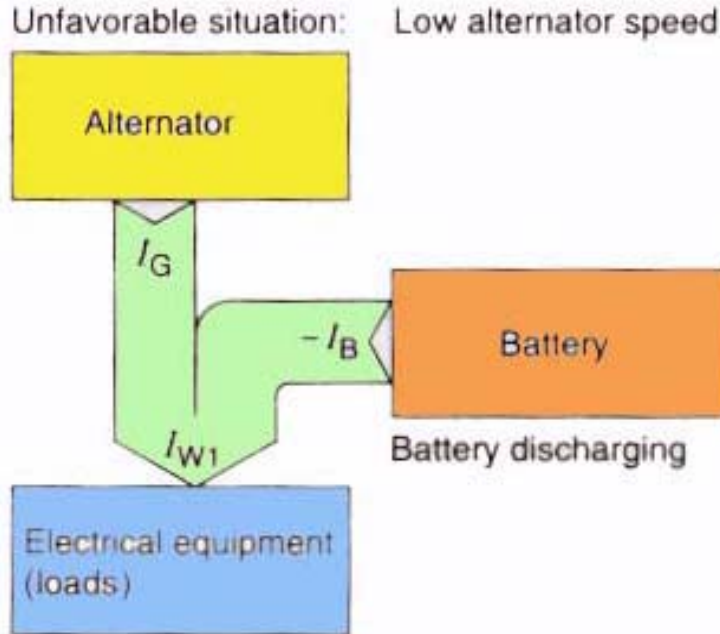
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## 3. What is Alternator ?

- ❖ Alternator is the generator using the principle that if rotor coil, electromagnet winding coil around the iron core keeping an certain gap is rotated inside the state coil, the electricity is generated.
- ❖ Rotor coil is rotating by connecting to the engine of vehicle during driving, and if the electricity is not supplied, it becomes idle engine, and if the electricity is supplied, it becomes electromagnet, and then it supplies the electricity to the vehicle by adjusting by generating the induction electricity to the stator coil.
- ❖ It is equipment that the electricity supplies to the vehicle normally, and if a surplus electricity is existing, charge the battery, and if the voltage of vehicle is increased more than the certain level, stop the generation and wait the operation, and then if it required for the electricity, generate the electricity.

# Electricity Equipment

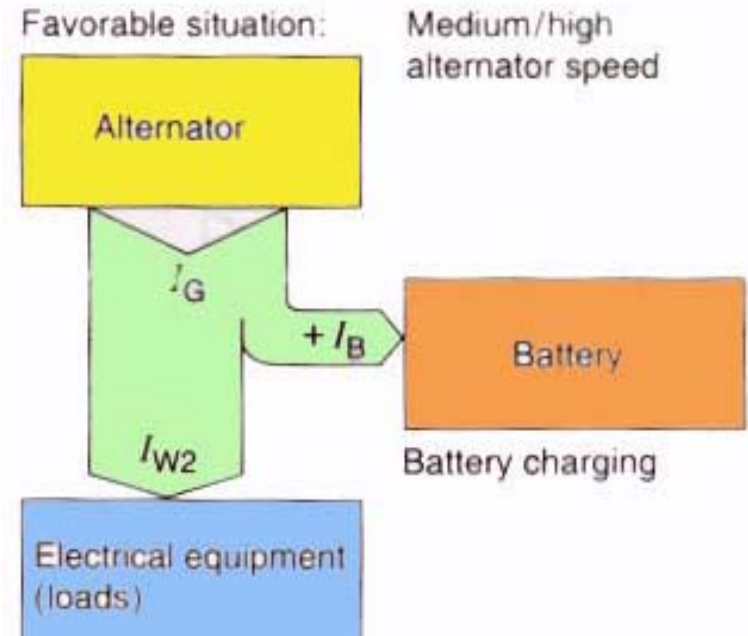
## 4. Operation of Alternator



In case of the rotation speed of generator is low

Alternator + Battery

Electricity Equipment



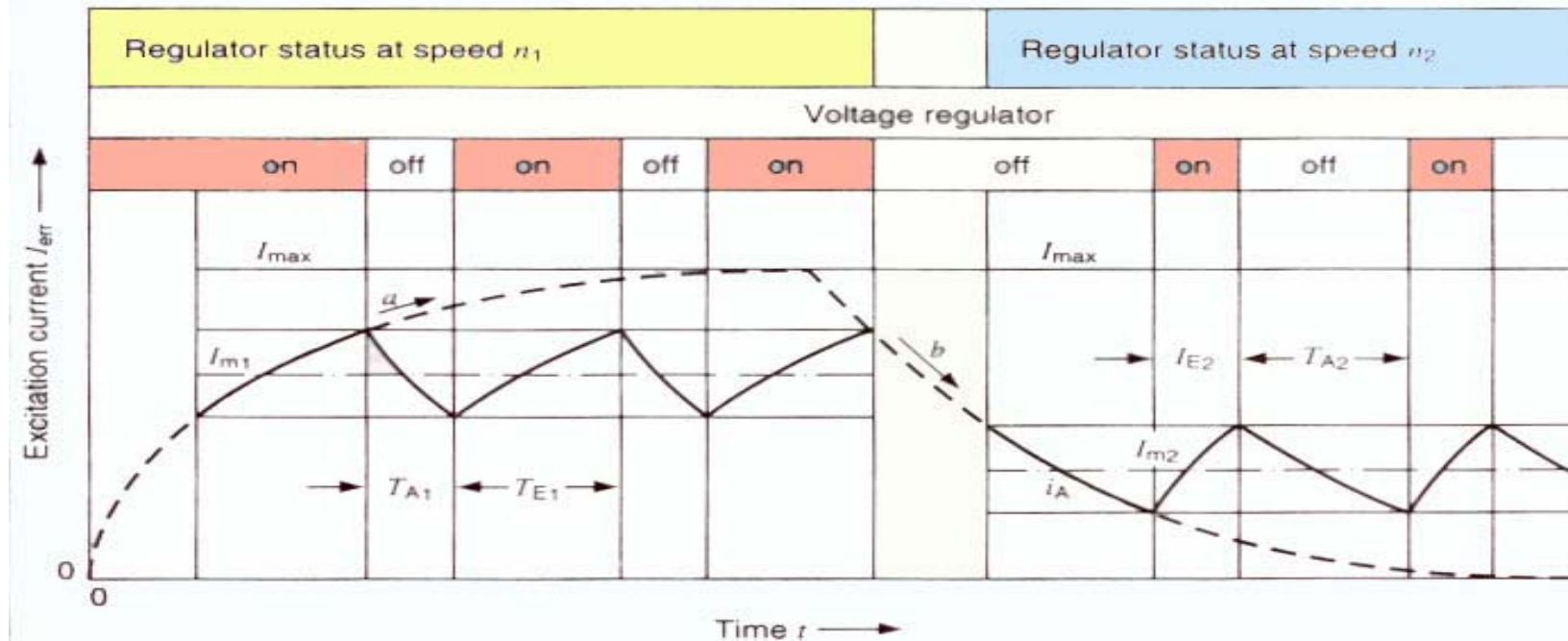
In case of the rotation speed of generator is middle and high

Alternator

Battery & Electricity Equipment

# Electricity Equipment

## 5. Voltage change of Alternator



The voltage as a dotted line is produced on an alternator when supplying the current as a solid line according to On / Off on rotor coil. As shown above, alternator stops to produce the electricity and even if it produces the electricity, it is supplied the electricity less than the standard voltage for the certain period. In this case, the lack of electricity is supplied by the rapid discharge of battery.

# Electricity Equipment

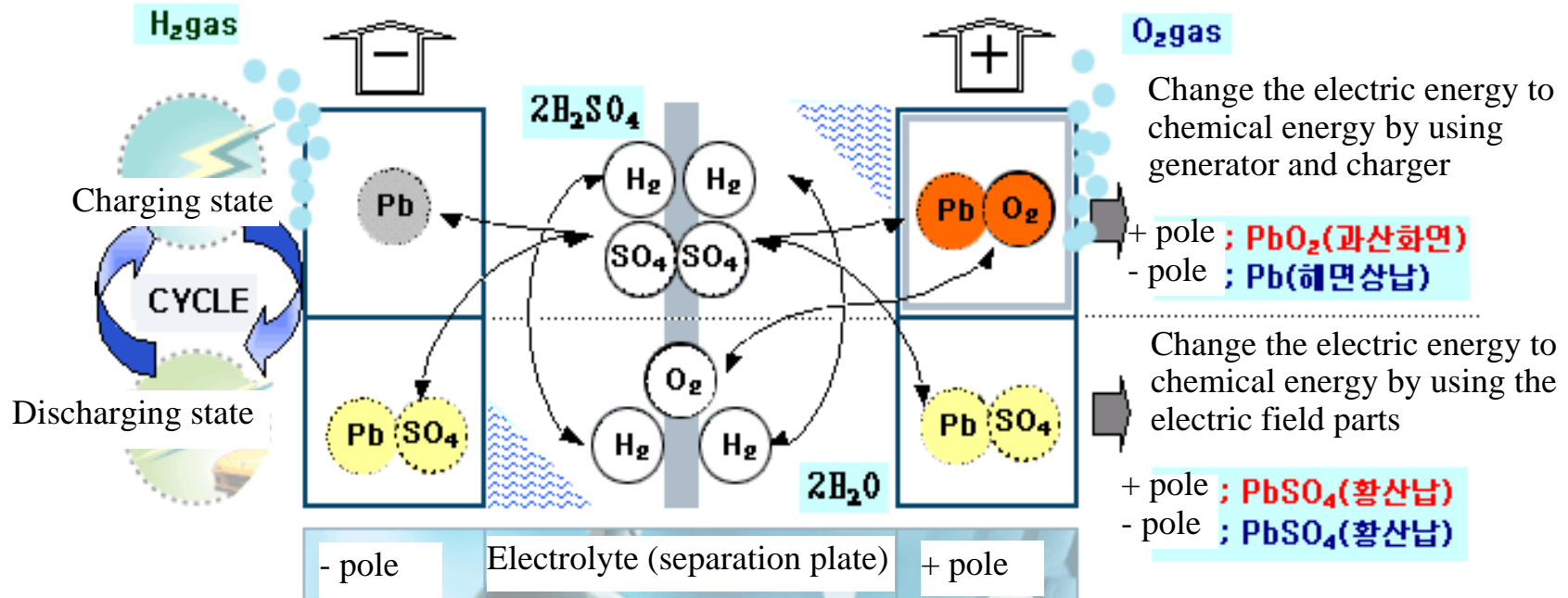
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## 6. What is Battery ?

- ❖ The roles of battery is divided by three parts,
  - 1) Supply the electricity needed until the alternator supplies the electricity,
  - 2) Supply the electricity by discharging in case of it is required a lot of electricity after starting,
  - 3) Stabilize the power change of the unstable alternator.
- ❖ 12V battery consists of 6 cells, and each cell produces the voltage of 2.1V ~ 2.3V, and this is united and then produce the voltage of 12.6V ~ 13.6V.
- ❖ The principle of charging/discharging battery is by a chemical reaction,
  - ✓ In case of charging, PbSo<sub>4</sub> having + pole is PbO<sub>2</sub>, and , PbSo<sub>4</sub> having - pole is a lead, and water is changed to an electrolyte.
  - ✓ In case of discharging, it reacts conversely.

# Electricity Equipment

## 7. Chemical change of battery charging/discharging

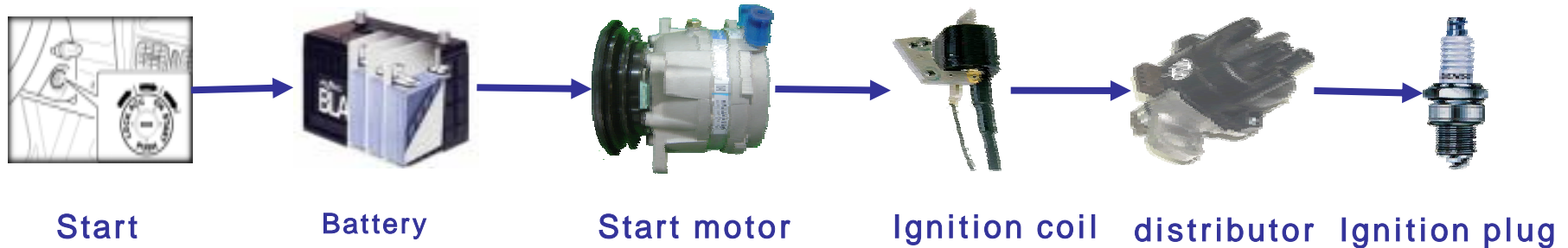


The chemical change above is generated by charging and discharging a battery repeatedly. In case of rapid charging/discharging, the performance decrease of battery and shortening of battery life is brought out by inactivating the chemical reaction above.



# Electricity Equipment

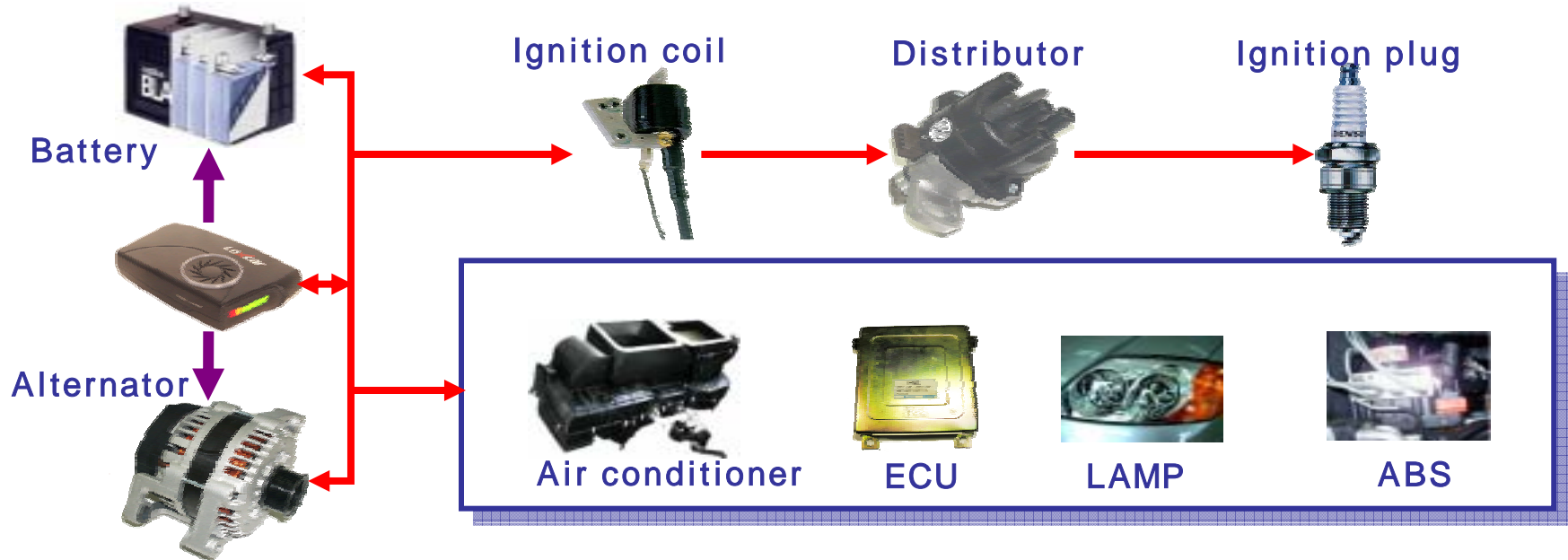
## 8-1. Flow of current when starting



When turning the starting key, the battery supplied the electricity to the start motor, and then operates the start motor. When operating the start motor, the engine is started by the energy of the start motor, and the electricity supplied from battery to ignition coil is increased more than 20,000V at the ignition coil, and this is supplied through the distributor to the ignition plug, and then it operates the engine normally by igniting to the mixer of compressed fuel.

# Electricity Equipment

## 8-2. Flow of current after starting

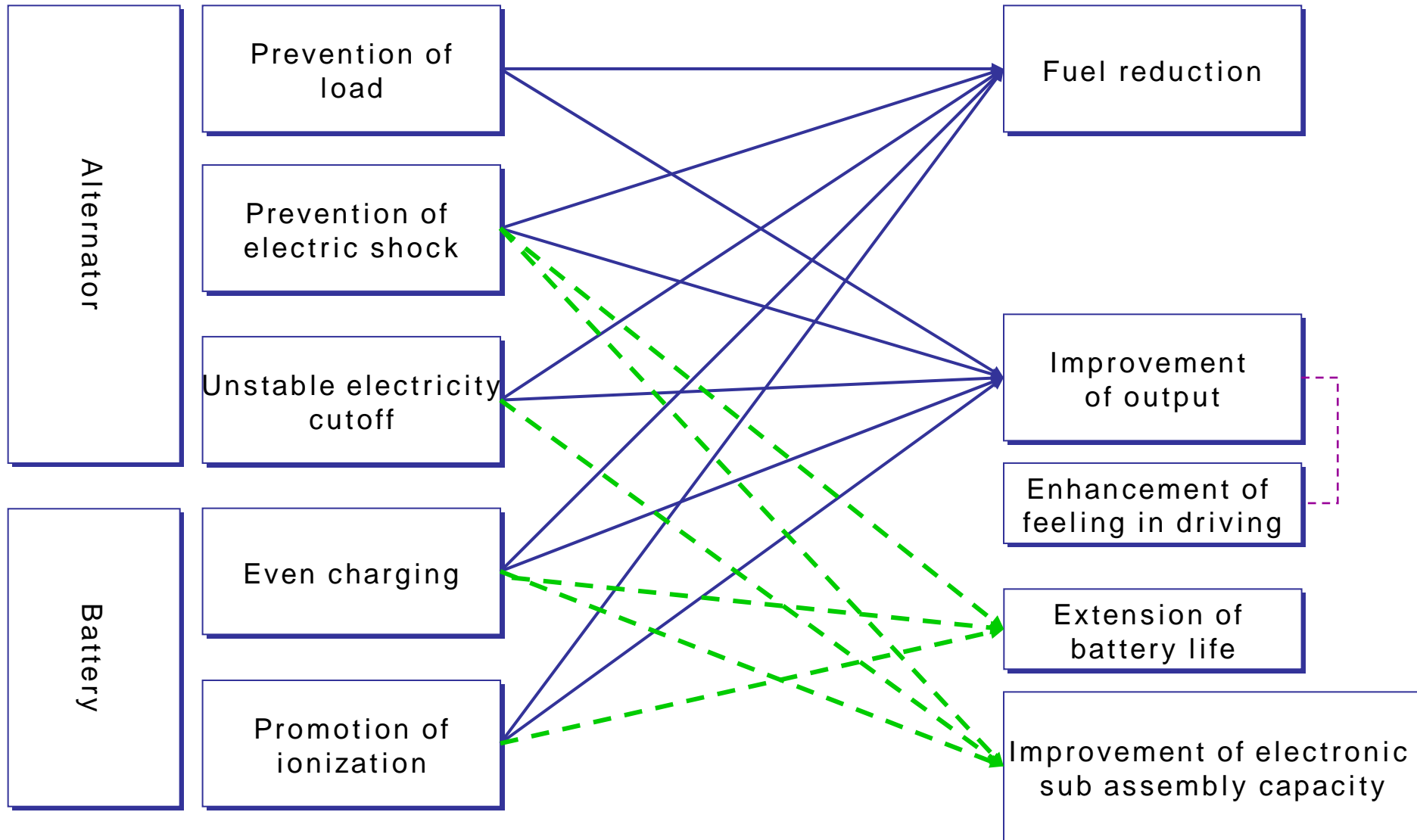


We tend to think that the battery supplies the electricity directly to these parts, but, actually, the battery supplies the electricity when using the electricity before starting and when operating start motor in case of starting, and the electricity after starting is supplied by alternator, i.e., the generator of vehicle. Loxcar improves the output of vehicle and reduced the fuel consumption, and then improves the performance of parts by controlling battery and alternator supplying electricity and by restraining the unstable electricity.

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# Fuel Reducer

# Principle of Reduction



# Principle of Driving

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- ❖ An alternator, a power generator for an automobile is operating upon a principle of electromagnetic. When RPM increases, the alternator controls voltage by cutting RPM or allowing electric current to be charged to a rotor coil. As general motors are, the rotor coil consumes considerable amount of electric current due to the increase of instantaneous when it is started, and it causes heavy load to an engine.
- ❖ Loxcar reduces the number of Dotong and cut of electric current existent on the rotor coil by controlling consumption electric current when the voltage of an automobile exceeds the established voltage, thus, it reduces the load added to an engine when Dotong of electric current existent on the rotor coil and extends the life of electronic sub assembly with an fuel reduction effect and the stable supply of voltage.
- ❖ In addition, Loxcar improves the capacity of battery and the stability of voltage of an automobile by generating evenly charged voltage from a battery with its function of assembling inverting circuits of high frequency and low frequency when the voltage is lower than the established voltage while checking the voltage of an automobile with a speed of more than 1million times/sec.

# Control of Alternator - 1

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## 1. Prevention of Load

- ❖ When it needs to have more electricity than the one offered by an alternator, a battery of an automobile rapidly discharges necessary electricity and later it discharges electricity by being supplied electricity from the alternator. When it needs to suddenly have much electricity when an alternator is stopped, the electricity rapidly discharged increases much more.
- ❖ Such rapid charge and discharge of electricity may reduce the battery life and affect negatively electric devices or electronic sub assembly that need diverse types of electricity.
- ❖ Loxcar prevents such rapid charge and discharge of electricity of a battery by immediately sending electricity supplied by an alternator to a necessary site when necessary while checking the electricity condition of an automobile at a speed of 1million times/sec. And consuming electricity generated by an automobile along with an electric circuit.

# Control of Alternator - 2

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## 2. Prevention of Electric Shock

- ❖ When it needs to have more electricity than the one offered by an alternator, a battery of an automobile rapidly discharges necessary electricity and later it discharges electricity by being supplied electricity from the alternator. When it needs to suddenly have much electricity when an alternator is stopped, the electricity rapidly discharged increases much more.
- ❖ Such rapid charge and discharge of electricity may reduce the battery life and affect negatively electric devices or electronic sub assembly that need diverse types of electricity.
- ❖ Loxcar prevents such rapid charge and discharge of electricity of a battery by immediately sending electricity supplied by an alternator to a necessary site when necessary while checking the electricity condition of an automobile at a speed of 1million times/sec. And consuming electricity generated by an automobile along with an electric circuit.

# Control of Alternator - 3

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## 3. Unstable Electricity Cutoff

- ❖ Electricity occurred in a car includes unstable electricity such as parasitic voltage which instantaneously drops below the standard voltage, and a noise which is voltage abnormally leaped up.
- ❖ Loxcar offers quality electricity stably to electric devices or electronic sub assemblies that need various kinds of electricity by suppressing or substituting such electricity.



# Control of Battery

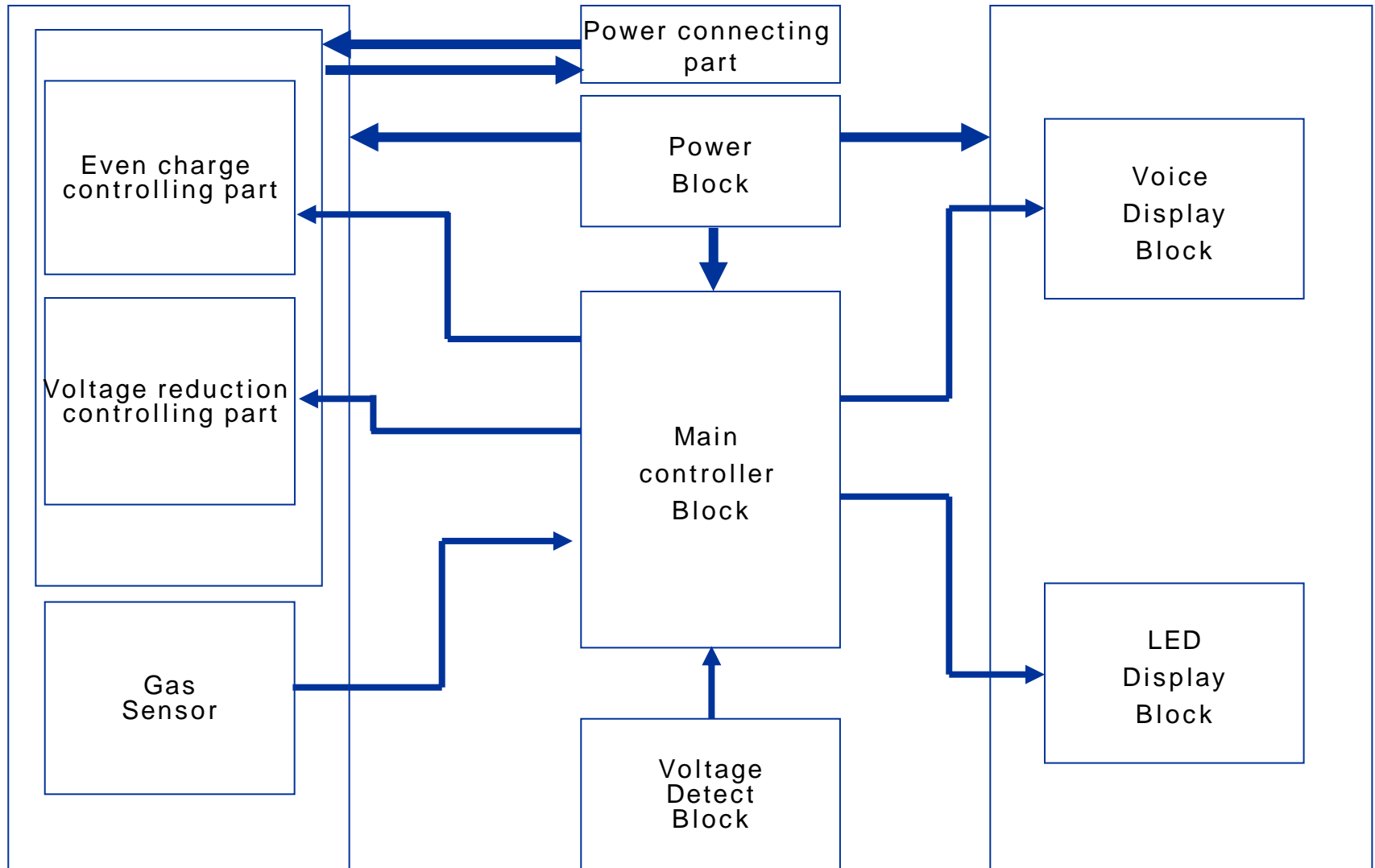
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- ❖ Do you know that it takes much longer to charge a battery from 50% to 60% than to 90% to 95%? You might have experienced that it is harder to inflate a balloon when it is already swollen than it is not swollen yet.
- ❖ The battery of an automobile is exhausted all the time! It needs to discharge electricity for starting a machine and charging electricity consumed as an air conditioner consumes much electricity. Then, it has to make sudden discharge since its thermal cable suddenly consumes electricity when the battery is going to charge a while after discharging electricity. Such a repetition of rapid charge and discharge of electricity disturbs ionization of a battery, lowers battery capacity, and lowers the battery life by preventing the battery from being fully charged.
- ❖ Loxcar additionally charges a battery which is not yet fully charged, by generating instantaneous low voltage electricity over 20,000times/sec.. Also, it enhances battery capacity and extends the battery life by promoting ionization (promotion of ionization) for substances not ionized (even discharge)

# Effect of Installation

	Before installation	After installation
Reduction of engine load	The voltage generator comprising an AC generator is working upon a principle of electromagnetic, and it prevents the generation of excessive voltage by cutting electric current of inside coil in case of the occurrence of excessive voltage. When generating voltage due to reduced voltage, the magnetizing component inside coil disappears and the load is increased or decreased to an engine.	It maintains a regular flow of electric current and reduces the number of cutoff of the current flow inside a coil by reducing the number of the occurrence of excessive voltage. Therefore, it reduces engine load.
Voltage regulator and galvanostat	It is impossible to maintain fine constant voltage by a constant voltage circuit when operating diverse electronic sub assemblies of an automobile.	It maintains constant voltage necessary for electric systems (voltage detective circuit), supplies stable voltage to each electric system of a car, improves the output of a car with stable operation of each electric system, and reduces fuel. (improvement of ignition function, stable sensor operation, stable supply of electric current)
Reduction of resistance value	The resistance value increases due to the aging of electronic systems.	Reduction effect of resistance value thanks to the stable supply of electric current to old electric systems by maintaining constant electric current
Improvement of battery capacity	The battery capacity is lowered and the battery life is reduced owing to the rapid charge and discharge of electricity.	Improvement of battery capacity and extension of the battery life with the prevention of rapid charge and discharge of electricity by controlling constant electric current

# DIAGRAM



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# Safe Driving

# What LOXCAR is for?

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- ❖ It is not too much to say that air inside an automobile is gradually hurting our safe driving and health. It is time to focus on the indoor environment of an automobile rather than on polishing your car. In particular, it is indispensable to purify indoor air through ventilation for a car that you take with your family.
- ❖ Loxcar keeps your safety and pursues safe driving by producing a warning message for awakening and drowsiness to a driver with a voice by using a thermopile IR sensor which is used for medical appliances for high concentration of CO<sub>2</sub> and deficient oxygen that cause drowsiness and headache.
- ❖ It awakens you while driving. Therefore, when the concentration of CO<sub>2</sub> reaches a certain level, it produces a warning message “Please mind your driving!”, and when the concentration becomes thicker, it produces a warning message “Please stay awake for safe driving.”

# Indoor Air Pollution - 1

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- ❖ Automobiles became an indispensable product in modern life and have been used for convenience sake, yet, there are not many people who deeply perceive pollutants for an automobile.
- ❖ As for CO<sub>2</sub> of such pollutants, there have been innumerable research results that CO<sub>2</sub> concentration was measured 2-10 times higher inside of a car than concentration values measured on the road.
- ❖ For instance, when two people drive on an indoor circulation mode based on a car with 2,000cc, CO<sub>2</sub> concentration reaches 2700ppm inside of the car in 20 minutes, and this value is 7 times higher than the average CO<sub>2</sub> concentration (about 356ppm) in the air. (Research conducted in collaboration with California Air Resources Board (CARB) & South Coast Air Quality Management District (SCAQMD) for two years)
- ❖ When CO<sub>2</sub> concentration becomes thicker inside a car, passengers feel hard in breathing and suffocated. CO<sub>2</sub> accumulated in a human body induces drowsiness by stimulating the medulla, thus, it becomes a risk factor for safe driving. All the more, since CO<sub>2</sub> is mutually contradictory to oxygen, the increase of CO<sub>2</sub> inside a car means the deficit of oxygen.

# Inside Air Pollution - 2

- ❖ When CO<sub>2</sub> concentration becomes thicker in the air, it may cause a fatal influence to a human body as below.

CO <sub>2</sub> concentration in the air (%)	Symptoms of poisoning
2.5	There is no trouble despite several hours ' inhalation
3.0	The number of breathing becomes faster mechanically.
4.0	A subjective symptom appears locally.
6.0	The volume of breathing becomes increased.
8.0	It becomes hard to breathe.
10.0	A person becomes unconscious and eventually dies.
20.0	There appears heart attack in several sec. and the heart finally stops.

# Inside Air Pollution - 3

- ❖ When the deficiency of oxygen lasts, it may cause a fatal influence to a human body as below.

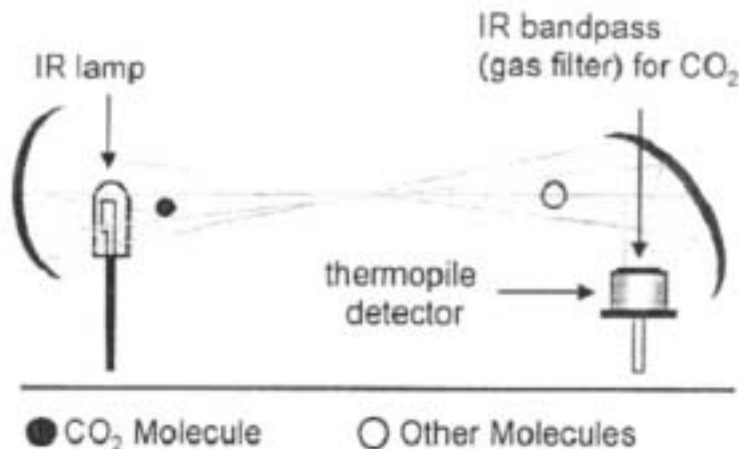
Oxygen concentration	Influence on a human body
21%	Normal
Below 18%	Deficiency of oxygen
16 12%	Increase of pulse, frequency of breathing, trouble in mental concentration, hard to do delicate muscle movement, headache
14 9%	Dull decisive faculty, excitement, unstable mental condition, intoxication, increase of body temperature, Zyanose, hard to feel injury, no memory at that time
10 6%	Unconsciousness, central nerve trouble, Zyanose
Continued to be 10 6% or below	Coma gradually slowed breathing breathing stoppage heart stoppage in 6 8 min.

**Zyanose: A symptom that skin or a mucous membrane looks blackish due to deficient oxygen in blood.**

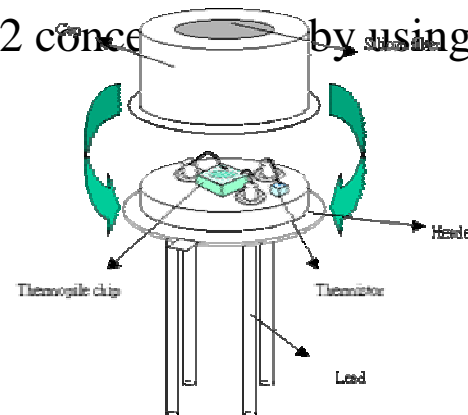


# What is CO2 Gas Sensor?

- ❖ The way of measuring CO2 applied to Loxcar is a method using a thermopile IR (Infra Red) sensor which enables you to consecutively measure CO2 concentration within the respiratory organ of a patient who is put under anesthesia. Therefore, you can monitor appropriate ventilation in an artificial respirator and respiratory condition and discern respiratory diseases such as asthma, thus, this method is used for making a diagnosis.
- ❖ Thermopile IR Sensor is an optical sensor used for obtaining temperature information in general by detecting infrared emitted by a certain substance. Since it is mainly used for measuring temperature, operating temperature, preservation temperature, output voltage scope, cut-on frequency, view angle, and conditions for



ties become crucial characteristics for the re CO2 conce by using those



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# Intellectual Property

# Patent Information

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## **Patent registration of the domestic invention (610552)**

Name: Vehicle efficiency improvement and fuel reduction device

## **Patent application of the international invention (PCT/KR2006/001278)**

Name : Apparatus for Enhancing the Performance of Vehicles

## **FCC VERIFICATION (FCC Certificate)**

The product compiles with the standard : FCC 47 part 15 subpart B (class A)

# Utility Model Registration



**실용신안등록증**  
CERTIFICATE OF UTILITY MODEL REGISTRATION

등록번호 0398974 호      등록일자 2005년 10월 11일  
REGISTRATION NUMBER      REGISTRATION DATE

고안자 명칭 (TITLE OF THE OWNER)  
국립중앙도서관

실용신안권자 (OWNER OF THE UTILITY MODEL RIGHT)  
등록사실관계 기재

고안자 (OWNER)  
이대희 ( 880515-2\*\*\*\*\*)  
경기도 용인시 삼원동 884 만원아름3단지 성원상세빌 307-201

위의 고안은 「실용신안법」에 의하여 실용신안등록원부에  
등록되었음을 증명합니다.  
(IT IS TO CERTIFY THAT THE DEVICE IS REGISTERED ON THE REGISTER OF THE KOREAN  
INTELLECTUAL PROPERTY OFFICE.)

2005년 10월 11일

 특허청  
KIPRO, THE KOREAN INTELLECTUAL PROPERTY OFFICE

이 실용신안권은 「실용신안법」 제43조에 따라 등록 30년, 제45조 제2항에 따라 실용신안권자는 만기 전까지 5년간  
이 실용신안권의 효력을 정지시킬 수 있습니다.

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CONTACT US

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