every second, our sun produces enough energy to sustain Earth’s needs for 500,000 years.
PT. AVECODE INTERNATIONAL was founded in 2007 as green and renewal energy products located in Batam, Indonesia, latter in 2011 the company start to market Solar Energy system for Home Application and Street Light, with registered brand name celesta ®. The company had been going through completed on constant growth, PT. AVECODE INTERNATIONAL with its latest expansion by having own manufacturing facilities for solar panel & solar street light assembly, our total capacity min 60 MW / years.

PT. AVECODE INTERNATIONAL also having advance solar controller technology for solar street light, the ability to light up the solar street light 5 times longer on cloudy & rainy days compare other product. The company was certified for ISO 9001:2015 quality management standard.

AI Intelligent Technology To Achieve Customized, based on 70% power saving, through the AI intelligent digital power technology, we able to do better customized according to local sunshine and rainy days. Our advance solar street light system, Ranged as No. 1 top brand for solar street light.

Company Registration:
2. Payout – Capital: Rp 5,000,000,000,00 equivalent to USD 500,000,00
Company Mission: To Provide Best Solution for Customers’ Needs.

Our Competitive Advantages:
1. Ranked top product quality with its brand new technology.
2. It has own production base and engineering team to produce high-quality product.
3. Strong sourcing team with years of technical know-how.
4. Warranty & Certificate
   Feel free to leave the warranty issue to celesta ®
Celesta Solar is undoubtedly the leader in solar cell technologies. We have reached the highest efficient cell, which is over 22.20%. The cell also has anti PID class, which can make the cell generation more powerful in extreme environments.

**Seal Tape**

We are working with the most professional seal company in Germany, and cooperated to innovate the seal tape for solar module, which could protect the panel in all ways. The certification of IPX7 class waterproof level guaranteed there is no water leaking into the panel.

**Glass**

The glass could not only protect the cell from breaking up, but also helps it to absorb more sunshine. Compared to normal glass, the glass we specially designed has more than 1,000,000 condenser lens to absorb more photon, which world generates 5% UP of power output.
Junction Box
In the solar cell module composition, Junction Box is a very important element and its main role is to power on the external circuit connection in the solar cells.

1P-68
We are one of the leading companies who is using IP68 waterproof class Junction Box, it can protects electronic components in the best way.

EVA
In order to protect the fragile solar cells from crumbling and keep other elements away from corrosion and oxidation. So we to stick the EVA with the glass, the cell and the back sheet together.

85°C
We are using EVA material for every single solar module. They have been tested in 85°C and 85% moisture room to make sure that the cells won't erode.

Back Sheet
The presence of moisture in the air, and the water molecules pervasive. To improve its protection the double side back sheet fluorine has been used to isolate the cells. To make sure the module could work well as we promised.

25 Years
Our total production capacity is 60MW / Year. Based on our current manual line process.

In recent years, PT AVECODE INTERNATIONAL gained excellent reputation in Indonesia and increased sales volume in recent years.

The development of Indonesia local market, allowed us to expand our current production capacity by establish full automatic soldering line by end of 2019 with capacity 100MW/year.

With our collaboration with German engineer through our partner “Hanover Solar Gmbh” we are able to maintain the high standards in panel quality.

We setup a solar panel manufacturing in 2013, aim to export the goods to Europe and also local Indonesia market.
• SOLAR PANEL
A power generating device that converts solar radiant energy into electrical energy by absorbing sunlight.

• INVERTER
Convert the DC power generated by the solar panels into AC power for home use or sold to the grid.

• INVERTER
Convert the DC power generated by the solar panels into AC power for home use or sold to the grid.

• SOLAR CHARGER CONTROLLER
This control charging of the batteries.

• BATTERY
Since the sun doesn’t always shine, the electrical energy has to be stored somewhere for use in the meantime. We store it in batteries.

• SOLAR FRAME
Customized according to the roof.
Solar Tracker System-Panasonic Batam

Solar On-Grid System-Philips Batam

Solar Off-Grid System-Longnawang (Kaltara)

Solar On-Grid System-Excelitas Batam

Solar Off-Grid System-Batam

Solar On-Grid System-UNSRI (Palembang)
Monitoring Solution

We can provide our customers with a flexible internet monitoring solution which is suitable for residential, commercial rooftop systems and PV power plants. System monitoring device is user-friendly and reliable. It can transmit real-time data to our server via internet. Customers can login website or use APPs to check power plant information.
SOLAR POWER SYSTEM - INVERTER

Off-grid Inverter
- BN1012C/E
- BN1024C/E
- BN1512C/E
- BN1524C/E
- BN2012C/E
- BN2024C/E

Solar Pumping Inverter
- BPD07TN(AC)
- BPD10KTN(AC)
- BPD20KTN(AC)
- BPD04TNAC
- BPD2K2TRAC
- BPD004TRAC
- BPD5K5TRAC

Hybrid Inverter
- BD3KTL
- BD5KTL

All-in-one Hybrid System
- BD3KTL-HS
- BD5KTL-HS

Energy Storage Inverter
- BD3KTL-P5

Energy Storage Converter
- BD30KTR
- BD100KTR
- BD200KTR
- BD300KTR
- BD500KTR

Single Phase Grid-tied Inverter
- MG750TL
- MG1KTL
- MG1K5TL
- MG2KTL
- MG3KTL

Grid-tied Inverter
- MG4KTL
- MG4K6TL
- MG5KTL
- MG3KTL-2M
- MG4KTL-2M
- MG4K6TL-2M
- MG5KTL-2M
- MG6KTL-2M

Residential 0.75-6KW

Commercial/Plant 4-70KW
FULL DC MINI HOME SOLAR SYSTEM

Indonesia is one of country located under equatorial coverage, which translated to greater potential of solar energy harvesting.

CELESTA SHS product line are designed to the need of Indonesia rural area and remote area where the electricity & grid connection are impossible to reach. Such area like rural villages, Farm, Plantation, Ad-hoc project, Mobile operation Units, Etc.

The CELESTA SHS System are designed with accumulate knowledge of power management, quality component & the pattern of consumer electric consumption of villagers.

With all experience we deliver reliable product, to last four years with minimum maintenance requipments.

CL-SHS180W-GEL

**Solar Panel**
- Type: Mono Crystalline
- Peak Power: 180W
- Rated Voltage: 19.80V
- Cell Efficiency: 18.60%
- Panel Efficiency: 15.40%
- Quantity: 1 Pcs

**Controller**
- Type: MPPT-DC
- System Voltage: 12/24V
- Max. Charging Current: 15A
- Max. Tracking Efficiency: 99.9%
- Max. Charge Conversion: 97.0%
- Max. LED Driver Efficiency: 96.0%
- Quantity: 1 Pcs

**Battery**
- Type: Gel Battery
- Voltage: 12V
- Rated Capacity: 100Ah-Gel
- Quantity: 1 Pcs

**LED Light**
- Type: LED Bulb
- Voltage: 12V
- Power: 3W
- Quantity: 5 Pcs

**TV LED**
- Type: TV LED
- Screen Size: 22"
- Voltage: 12VDC
- Quantity: 1 Pcs

**Parabola Receiver**
- Type: Parabola
- Decoder: Receiver
- Voltage: 12VDC
- Quantity: 1 Pcs
Photovoltaic water pumps is solar water pumps, photovoltaic pumping system is Luminous energy - Electro-Mechanical integration System with the rapid development in recent years, which is using the electricity by the solar panel, through the maximum power point tracking, conversion and control device drivers DC, permanent magnet, brushless, non-sensor, dual-rotor plastic motor or high-performance high-speed asynchronous motor or switched reluctance motor driven high efficiency pump, pumping water for irrigation or human and animal consumption from the depth to the ground.

It has been increasingly recognized the most attractive means of water supply in the sunshine rich areas, especially in the remote areas of lack of electricity and without electricity, using the solar energy which is taken from everywhere and inexhaustible to achieve water supply of high economic and high reliability. Pumps work sunrise and stop sunset automatic without person to do it, it is an green energy high—tech products with economic, reliability and environmental benefits.

The Principle diagram of the photovoltaic pumping
HOW TO SELECT SOLAR STREET LIGHT

- There are current no standards for solar street light and many suppliers product are neither well engineered and suffer from performance and stability issues.
- Solar Street light systems are actually highly customizable system solution. This market is a little disordered.

We will like to provide our professional advice when considering a solar street light system, with our brand new intelligent technology.

- Brightness: How many LUX on the ground?
- Autonomy Day: How many working days without sunshine?
- Lifespan: How long is the system life?

HOW BRIGHT IS THE LED

- We use high-power LED from CREE and BRIDGELUX and other top brand with high lumen chips, 170 Lm/W.
- Our LED is > 30% brighter than other high-power LED. As an example, for 6m height of light source, we only need 35W to reach 36LUX, but the others need 50W and about.
- Rectangular Shape light distribution without extra lens will dramatically improve the efficiency of LED lighting LUX by 15-20%. Most other vendors uses some form of lens to achieve the same effect.

Our Patented Design High Efficiency LED Bulb

Light is evenly distributed in a rectangular shape. The LED’s beam angle can reach 60°-150 degrees. (Round lighting Shape waste portions of the light zone. Our rectangular lighting shape can therefore improve the efficiency significantly)
Light is evenly distributed in a rectangular shape, the LED’s beam angle can reach 60°-150 degrees. (Round lighting shape waste portions of the light zone). Shape able to cover the total area from every pole distance.
Lighting throughout the whole year - Digital Controller

Why & How our patented controller makes our LED lamp save 70% Power compared with others,

\[ 45\% + 15\% + 10\% = 70\% \]

LED is basically semiconductor device, which favors power “on-off” Our patent controller makes the LED turn on/off 10K per second. Human vision cannot detect any flickering effect when frequency is above 25 frame/second.

By doing so, the light is working only half of the time, but to our eyes, LED is lighting in full time. The regular constant-current driver makes LED work full time. Therefore, combining with our power management system we save up to 70% of LED power consumption.

Our Controller has 2 patents,
One is invention patent,
Patent No:
ZL200710031050.6
ZL200720058676.1
A major problem with current high power LED street light is heat sink. The high temperature rise result in high light Decay 44-55 V.S. 65-75

Our light decay rate is much lower than industry standard. Our LED life span: >-50,000 hours, (to use for 12 hours per day), >6-8 Years VS the other vendors 3 Years of LED Lamp Life.

By Removing conventional LED driver, we save up to 15% of power loss.

Capacitor is indispensable device in the constant current driver it's lifespan: <5 years

Our patented intelligent controller uses 2 IC which consume 0.0625W to replace the constant current driver, so there is not capacitor in our controller the main material of IC is silicone, so our controller life is more than 10 Years.
Unique Energy saving mode design from our controller allows our lighting to decrease gradually after midnight resulting in a further saving of 5-10% LED power consumption.

50% power consumption compared with other solar street light systems is achieved 3 times longer in rainy / cloudy days that is to make sure our solar street lights work through 20-25 continuous days without sunshine. Most importantly, it achieves 100% lighting throughout the year.
BATTERY LIFE

The most important component for its charging and discharging is electrolyte, which must be cell protected, to improve the battery life to prevent the electrolyte from evaporating. This is related to the battery’s deep cycle times and working environment temperature.

This is the time cycle from battery full charged to full discharged. Our solar street light saves 70% power consumption. Therefore, each deep cycle time is prolonged.

The most suitable working temperature for battery is 20-25°C. If environment temperature is 10°C increased, lifespan of the battery could be decreased by half. By burying the battery under the tundra, (about 0.7-1m below ground) improves the battery’s working efficiency. Its life span. The constant temperature under tundra (about 20-25°C)
Why our batteries can be buried under the tundra?

Nano Technology Casing

Our battery casing is designed especially for solar applications. Nano technology is used in the casing and insulation / waterproof of electrodes, therefore no electricity leakage & water seepage when the battery is buried underground. This ensures our batteries meet the environmental compliance & prevent soil contamination.

- Our battery life is 4-5 years compared to 1-2 years from other under normal operating conditions
- Gel battery: 8-10 years.
- The Battery is about 35% of total cost of the solar street light, changing the battery 5 times means buying another solar street light system within 10 years.
CABLE & CONNECTOR

our anti ultra violet silicon rubber purple cooper wire and silver plated high-strength, anti aging water proof connectors can reduce the cable system resistance & the power loss in the wire to the minimum extent.

Power Loss In the Wire \( (P) = 12R \)

solar powered LED street lights : LED lamp : 100W/12V = 8.33-4A, \( P = 8.33\times 4 = 70R \), Ac powered street lights HPS power 100W/220V = 0.445/A, \( P=0.445\times 0.445 = 0.203R \)
Using reputable components and applying rigorous IQC, our product overall reliability is strictly guaranteed.

- The only guaranty 21 days operation under raining / cloudy days by using nano seal gel battery.
- When comparing, one will find that our lifespan is much longer, under same configuration and working duration in rain / cloudy days is 3-4 times longer,
- We promise 100% lighting throughout the year.
- 2 years total system warranty except solar panel 5 years warranty.
At the end of 2019, our group has delivered more than 6000 solar street light project in Indonesia, realizing whole year lighting with pure solar, the longest rainy and cloudy days reached 40 days. Numerous of our project confirm that our product don’t need to change batteries in 5 years, saving the most cost for you.
Smart lighting energy management system for solar street light mainly applies wireless communication technology to realize the functions of monitoring and management for solar street light.

Through the wireless network based on Zigbee and GPRS communication technology, the system could automatically acquire any kind of parameters and statuses from solar street light to make the on-demanding lighting come true. What's more, combined with solar street light technology, it could save the cost of power energy and maintenance labor. Additionally, under smart control and management, the solar street light could be working consistently without influenced by circumstance such as bad weather, serious terrain, etc.

Working with smart lighting system, solar street light could improve the energy efficiency by turning on/off at same time while extending the life of battery.
• **FULL RANGE OF DATA MONITORING**
  Automatically monitor and observe full range of lamp data and report abnormal situation in the event of accident or devices failure to be convenient for management and track.

• **REPORT AND GRAPHS**
  Relying on the understandable reports and graphs auto-generated by system, users are able to supervise the situation of energy consumption, make a decision and hold lighting energy more effectively.
Longest rainy and cloudy days reaches more than 20 days (24 hours working/day). Which is 5 times longer than conventional products.

Solar Umbrella light
Product Features:
- Solar Panel: 18V, 15W Folding
- Lithium Battery: 12V 10A
- Umbrella Light Frame: 5V 5W Bluetooth 7 Color Music
- Output: Single USB
- Diameter of lifting umbrella: 2.7M
- Height: 2.5M

Solar Canopy Light
Product Features:
- Solar Panel: 70W
- Battery: 11.1V, 40Ah
- Light: 20W
- Controller: 12V, 10A
- Bluetooth music cell phone charging
- Size: 2200*2000 mm
High performance module lighting, light easy to install. Widely used in main roads, highways, parking lots, viaducts, urban streets, overpasses, sidewalks, squares, schools, residential areas, parks and so on. While using less energy than traditional fixtures.

**LED STREET LIGHT**

**DETAIL SHOW OF LIGHT STRUCTURE**

- Driver cover
- Meanwell / Inventronics
- Driver bracket
- Heatsink body
- Lamp arm
- Silicone ring
- PCB
- Lens

**3D good heat dissipation**
Body's inner and outer ventilation system design of the air to auxiliary heat dissipation

**Good Corrosion resistant**
Baking technology, glossy and not easy to change color, corrosion-resistant, suitable for outdoor environments
High performance module lighting, light easy to install. Widely used in main roads, highways, parking, viaducts, urban streets, overpasses, sidewalks, squares, schools, residential areas, parks and so on. While using less energy than traditional fixtures.

Area luminaires (an optional) come with field rotatable optics. This allows you to rotate the optics 45, 90 degrees to the right or left, depending on the needs of your application. This is an important feature to limit light off-site and minimize jobsite complications. The tilt arm allows you to tilt the luminaire up to 55 degrees. This allows for additional forward throw to highlight specific areas of an application, such as a building facade.
CL-ST-022
Features
- CREE / Bridgelux chip
- Meanwell / Inventronics driver
- Integrates body cooling heatsink
  - Fast and efficient heat dissipation
- Waterproof IP66
- Resist 12 typhoons
- Racquet air-channel cooling fast

DETAIL SHOW OF LIGHT STRUCTURE
High-performance module lighting, updated architectural lighting such as Stadium lighting, canopy lighting, tower crane lighting and so on. While using less energy than traditional fixtures.

**Detail Show of Light Structure**

- **Two kinds of aluminum reflectors are available**
  - Square reflectors are also available; 18 x 19, 26 x 26, meet the requirement of professional light distribution and can be used in different places.

- **High performance heatpipe conduct the heat**
  - The principle of heatpipe is using the quick phase change of the fluid (diode) under vacuum condition which exchange the heat, the heat transfer rate is superior to any metal.

- **Massive fin cooling module**
  - Massive Fin cooling module efficiently reduce the temperature of the LED lighting chips and extend the lifespan of the lighting source.

- **Copper heatpipe**
  - Copper-heatsink can conduct heat rapidly from chips bottom to the fins, greatly lower down the temperature of light source, extending its life span.
High-performance module lighting, updated architectural lighting such as Stadium lighting, canopy lighting, tower crane lighting and so on. While using less energy than traditional fixtures.

**DETAIL SHOW OF COOLING TECHNOLOGY**

- Professional light distribution free to choose
- Protection grade IP65
- 240° bracket
- Cree chip
- Copper heatpipe
- 3D heat dissipation
- The entire housing coated by electrophoretic paint
- Silica gel ring sealing
- Respirator design
This Upgraded High Bay Light is an ideal lighting fixture for your warehouse, factory, workshop, plant, supermarket, basement parking or other commercial places. Its high stability current and superior LED chip will provide your working place with stable and sufficient brightness.

**Features**
- Lamp body with AL6063 aluminum material, pure copper tube set inside for thermal conductivity, taking good effect in LED life span;
- Optional various installations, satisfying different needs of lighting applications;
- Heat sink fin enlarges heat dissipation area with stylish profile;
- Replace: HID 200W-400W;
- Warranty: 5 years.

**The HDT Technology**
Pure copper heatsink is directly touching the heat source which could quickly transfer heat to the heatsink with the heat transfer rate over 200 times of the aluminum radiator.

**Reactor Option**
25° 60° 90° 100° 110° in choice of reflector for higher lighting efficiency.

**Chip Temperature Test (200W)**
- Ambient temperature: 25°C, Testing Duration: 12 Hours
- Average temperature of PCB: 70°C
- Average temperature of LED chip: 80°C
- Average junction temperature of LED chip: 85°C
- Average temperature of heatsink: 60°C
- Average temperature of driver: 52°C

**Dimensions (mm)**

**Installation**
- A. Hook Ring
- B. Tube
- C. Adjustable Bracket
- D. E40 Thread Base
PRIVATE

• PT. Asia Coco Batam
• PT. EPSON Batam
• PT. JOVANTECH Batam
• PT. Kharisma Asia Makmur
• PT. Excelitas Technologies Batam
• PT. Philips Batam
• PT. Panasonic Batam
• PT. Bukit Granitmining Mandiri (Karimun-Kepri)
• PT. Riau Alam Anugerah Indonesia (Karimun-Kepri)
• PT. Borneo Purnama Teknologi
• PT. Wahana Trans Utama
• PT. Cargill Ketapang
• CV. Binanga

RESIDENTIAL

• ORCHARD PARK Batam (Agung Podomoro)
• BEVERLY HILLS (Batam)
• PARAGON HILLS (Batam)
• OSSELLA (Batam)
• TIBAN HILLS (Batam)

GOVERNMENT

• Pemkot. Ambon
• Pemda. Polewali Mandar (Sulawesi Barat)
• Pemda. Saumlaki (Maluku Tenggara Barat)
• Pemda. Mamuju (Sulawesi Barat)
• Pemda. Tangerang Selatan
• Pemda. Tanjung Balai Karimun
• Pemda. Luwuk (Sulawesi Tengah)
• Pemda. Bintuk (Kepri)
• Pemda. Masohi (Maluku Tengah)