# Smartflower

Smart flower™ is a smart and innovatively designed solar power generator that makes it easy to produce 100% renewable energy for self-use. This solution enables customers to generate part of their electricity from a carbon-free and totally renewable source – the sun – and without having to do any work on buildings. Like a giant sunflower, this 6 miter tall mobile flower follows the sun's course. The ingenious solar tracking system improves solar electricity generation by 40% compared with a standard rooftop installation. Its 18 square miter of photovoltaic panels attached to 12 large petals can produce enough electricity to cover a year's electricity needs, excluding hot water and heating, for a household of four people. That's around 3,500 kWh completely free of any direct carbon emissions. smart flower™ is easy to install, making it an ideal solution for households, local authorities and the self-employed. The system's photovoltaic modules come with a 25-year warranty. Simply "planted" in a garden, school courtyard or alongside an office, this first solar generator to combine European high technology and intelligent design is easy to connect using its plug & play system. Self-cleaning and fully autonomous, it automatically folds at night or in the event of high winds.

We will develop prototype of smart flower system which will demonstrate this system. This consists of DC motors to control the operation of flower. The flower is sensitive to heavy wind, water. If there is rain or wind, the flower will automatically close itself. During night it will also remain in close state. The flower will automatically track the sun.

Block Diagram
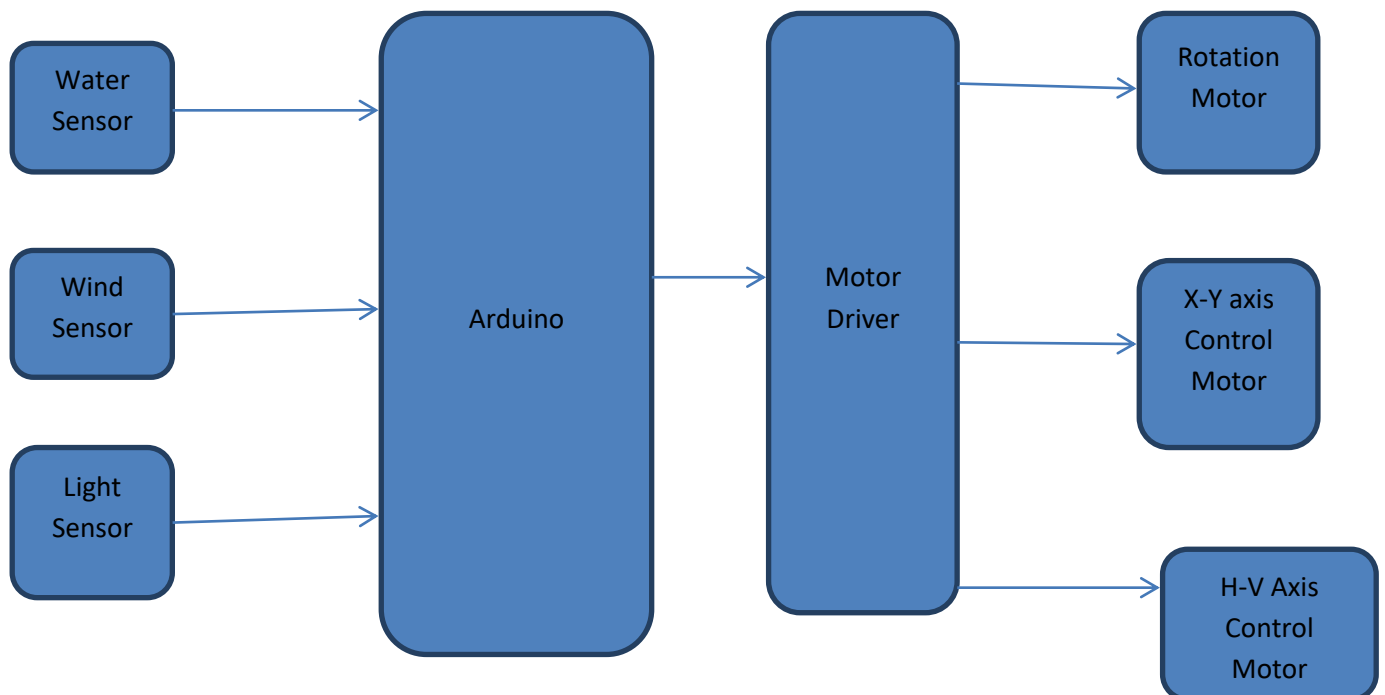
Arduino

The Arduino Uno is a microcontroller board based on the ATmega328 (datasheet). It has 14 digital input/output pins (of which 6 can be used as PWM outputs), 6 analog inputs, a 16 MHz ceramic resonator, a USB connection, a power jack, an ICSP header, and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started. The Uno differs from all preceding boards in that it does not use the FTDI USB-to-serial driver chip. Instead, it features the Atmega16U2 (Atmega8U2 up to version R2) programmed as a USB-to-serial converter.
Revision 2 of the Uno board has a resistor pulling the 8U2 HWB line to ground, making it easier to putintoDFU mode.
Revision 3 of the board has the following new features:
• 1.0 pinout: added SDA and SCL pins that are near to the AREF pin and two other new pins placed near to the RESET pin, the IOREF that allow the shields to adapt to the voltage provided from the board. In future, shields will be compatible both with the board that use the AVR, which operate with 5V and with the Arduino Due that operate with 3.3V. The second one is a not connected pin, that is reserved for future purposes.
• Stronger RESET circuit.
• Atmega 16U2 replace the 8U2. "Uno" means one in Italian and is named to mark the upcoming release of Arduino 1.0. The Uno and version 1.0 will be the reference versions of Arduino, moving forward. The Uno is the latest in a series
of USB Arduino boards, and the reference model for the Arduino platform; for a comparison with previous versions

Drivers:

PER CHANNEL
1.2A PEAK OUTPUT CURRENT (non repetitive) PER CHANNEL ENABLE FACILITY OVERTEMPERATUREPROTECTION LOGICAL "0" INPUT VOLTAGE UP TO 1.5 V (HIGH NOISE IMMUNITY) INTERNAL CLAMP DIODES

DESCRIPTION
The Device is a monolithic integrated high voltage, high current four channel driver designed to accept standard DTL or TTL logic levels and drive inductive loads (such as relays solenoides, DC and stepping motors) and switching power transistors. To simplify use as two bridges each pair of channels is equipped with an enable input. A separate supply input is provided for the logic, allowing operation at a lower voltage and internal clamp diodes are included. This device is suitable for use in switching applications at frequencies up to 5 kHz. The L293D is assembled in a 16 lead plastic package which has 4 center pins connected together and used for heat sinking The L293DD is assembled in a 20 lead surface mount which has 8 center pins connected together and used for heat sinking