# CALIFORNIA STATE SCIENCE FAIR
## 2010 PROJECT SUMMARY

**Name(s)**
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**Project Number**
**S0205**

**Project Title**
## Going Green: An Innovative Approach to Comfort

**Abstract**

**Objectives/Goals**
The objective our project was to create a solar-powered air conditioning system that would cool an enclosed vehicle without using the car's energy source (gasoline).

**Methods/Materials**
Solar panel, 12v vehicle air conditioning system (compressor, condenser, evaporator, motor still intact), red/ black wiring, dry battery, temperature control system, insulated vehicle.
Connect the solar panel to the dry battery. Connect the dry battery to the temperature control. Connect all components of the air conditioning system to the temperature control system. Input the system into an enclosed vehicle. Take notice the starting temperature of the enclosed vehicle and set temperature control to ten degrees lower than initial temperature and set on "auto". Leave inside of the vehicle and time how long it takes for the air conditioning system to turn on and off (cool 10 degrees). Record data and repeat for 30 more trials.

**Results**
Our results were very consistent. 50 Primary trials and 30 Secondary trials were taken to prove our system's reliability. The time it took to cool down a vehicle by 10 degrees was approximately 20 minutes with our system. Times varied below and above this average because the volume of the cars were taken into consideration. The ratios of volume of vehicle:time are also available and prove that our system is consistent and reliable.

**Conclusions/Discussion**
In the end, our project set up proved to be successful. Our air conditioning system was able to receive enough energy from the sun and cool the temperature inside the vehicle by 10 degrees in around 20 minutes. The use of the temperature control system proved to be useful and effective as well, as it turned off once it hit the desired temperature. Overall, it has been proven that an air conditioning system can successfully cool an enclosed vehicle through an alternate energy source (solar).

**Summary Statement**
A solar-powered air conditioning system was created and implemented into an enclosed vehicle to test the system's efficiency.

**Help Received**
Rudy Darryanto & Danny E. taught us about the mechanics of our project as well as obtain materials, City of Corona donated the solar panel used in our testing.