# Problematic approach for designing a CubeSat.

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CubeSats are miniaturised space satellites which are mostly used in space research and communication purpose. They are U class satellites, cube shaped with most common dimensions 10×10×10 cu.cm weighing not more than 1.33kg. The basic block of a CubeSat is very simple that it consists of a transmitter, receiver, battery and a programmed microcontroller/embedded system. These are generally launched in low earth orbits which is at an altitude less than 2000 km. While designing CubeSats we may come across wide range of problems like power optimization and utilization, temperature constraints (includes thermal dissipation), semiconductor packaging defects and attitude control. We discuss the problems one by one and provide solutions to them. CubeSats require low power to operate when compared to that of some standard satellites and the availability of power is not much due to the fact that self-generation of energy is required on a very small surface area available. Hence high performance solar cells are to be placed. Due to revolutions, the sun will not be available for these during eclipse region and needs to be powered by a power source(battery). This power source must be charged during the daylight region and sufficient energy must be stored in the shadow region. The battery which we use in this CubeSats must be very reliable as there are more number of charging and discharging cycles. At such a high altitude the temperature is very low and this creates a problem for the battery to be charged and discharged and brings a necessity for the internal heating circuit to avoid battery being short. In any case if that happens the CubeSat must be made in such a way that it can hard reset itself to the beginning of time. The next problem which we may find in making CubeSats is the manufacturing defects in semi-conductor packaging, such as formation of air bubbles inside these materials. When these semiconductors taken to vacuum creates a problematic situation such as the air bubble may burst out which leads to destruction or a corruption of CubeSat which is not at all acceptable, so before assembling these semiconductors they must be placed in vacuum chamber to reduce these defects. These three defects are related and solution to these defects makes us cross the hurdles easier. There are other problems such as exposing to harmful rays and temperature dissipations