The Sustainable Cube

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The purpose is to create a completely self-sustainable toilet that does not need water nor external electric sources to operate. The toilet will have the capacity of recycling wastes into fuel, electric energy and thermal energy. The design will ensure the initial separation of the urine from the fecal matter, it will also be completely ergonomic, will have a super-hydrophobic coating and will effectively change the waste into usable energy. The system will need minimal photo-voltaic energy. In order to achieve my goal, I started by focusing on the toilet shape in relation with a targeted set of functions like separating the two constituents of human excrement, developing a super-hydrophobic spray to replace the traditional flushing system and recycling the wastes towards renewable energy creation. The effectiveness of the system was assessed based on the simulation of its use by substituting water for urine and clay for the fecal matter. At a larger scale, we have to evaluate safety, specifically the possible flammability of one of the products and the constraints to its integration into a third world environment.

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