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Designing for Sustainability in Electronics - If not now, when?... and how?

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In 2014 population of the Earth crossed over the 7 billion mark. By 2020, barring a global catastrophe or pandemic, the number will be bumping up against 8 billion. "Life's love of itself" might well serve the poet's effort to explain the reasons behind this explosive growth, however a less poetic reason is because of the lack of education in developing nations. In fact it has been shown that there is an inverse relationship between education and birth rate and countries around the globe. Thus it is imperative that those in developed nations focus more attention on getting tools for education, which today typically means Internet devices and access to both them and the Internet. How might that be done? By making electronics with an eye to sustainability through improved reliability.

Presently there is a great divide between developed and developing nations. Developed nations produce, consume and dispose of electronics at prodigious rates. New products are introduced that accelerating rates, and because of this, there is a shrinking concern for product reliability. The problem with the present model is that it is fundamentally unsustainable, especially if we are to fill the needs of those future citizens of the planet who suffered a simple misfortune of being born in the wrong place at the wrong time.

This paper will look at current manufacturing practices for electronics identifying the weaknesses in current approaches relative to their ability to pass a sustainability "litmus test" highlighting important lapses in the current more temporal approaches to manufacturing electronics.. The paper will also offer food for thought and suggestions relative to prospective solutions in electronic manufacturing which could allow for the production of much more reliable and sustainable products in the future, using one of the most ubiquitous elements on the planet, aluminum. Prospective construction methods and embodiments will be discussed and shown.

Keywords: Sustainability, electronics, reliability, aluminum substrates