



Robust Nest hopes to save up to 1.1 million premature babies who currently die every year from hypothermia in sub-Saharan Africa. | Photo source Fabien Roy

Innovation > New incubator is designed to protect premature babies from blackouts

## NEW INCUBATOR IS DESIGNED TO PROTECT PREMATURE BABIES FROM BLACKOUTS



### The incubator was created to save save millions of babies from premature deaths and can endure extended blackouts

**Spotted:** Switzerland–based architect Fabien Roy has designed an incubator for hospitals in sub-Saharan Africa that can work during power cuts. The incubator, which is named Robust Nest, is currently being exhibited at the Alcovia Design Show until 12 September as part of Milan Design Week.

Robust Nest hopes to save up to 1.1 million premature babies who currently die every year from hypothermia in sub-Saharan Africa.

According to Roy, the current design of incubators is not suitable for the common power cuts present in countries such as Kenya. He **explains:** “The main causes are their inability to provide heat during frequent blackouts, the difficulty to transport heavy and bulky devices on dirt roads and their vulnerability to high humidity rates, dust and temperatures.”

Robust Nest was developed as part of Roy’s graduate project at École cantonale d’art de Lausanne (ECAL). The innovation operates on a thermal battery developed by the Essential Tech Center of the École polytechnique fédérale de Lausanne.

The incubator contains pouches of paraffin wax inside the battery which are heated up when plugged into a power source. The wax is then turned into liquid. When a power cut occurs, the wax re-solidifies and releases heat, keeping the baby warm for up to four hours, which covers the duration of most blackouts. Each battery has a capacity of 1 million cycles of heating and cooling.

Because in Kenya and sub-Saharan Africa babies are removed from incubators much earlier than other countries such as Switzerland, Roy was able to make Robust Nest smaller than traditional incubators.

In addition to responding to power cuts, Roy designed Robust Nest with the aim of preventing deaths that occur both in and outside the hospital: “The concept was to consider the entire lifecycle of the project and not just be using a hospital. We wanted to create something that we can transport babies from a dispensary to a higher level hospital if necessary.”

Trials will begin in Kenya in the month of November. If this goes smoothly, Robust Nest should be functional and available in 2022. Robust Nest received the national James Dyson Award for Switzerland and is a finalist in the international stage of the award.

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### **Takeaway:**

More than 20 million babies are born prematurely or with low birth weight every year and an estimated 450 of them die each hour. It's believed that a majority of these deaths could be avoided by keeping babies warm. Roy's device has the potential to be hugely impactful, bringing babies throughout the world a step closer to a more equal chance at life.