India is constantly facing the threat of declining amounts of fresh water. Jawwad Patel, a 22-year-old engineering student from Hyderabad has developed a device from the convergence of general science and technology that benefits humankind.

‘Dewdrop’ is the name of model that fills and refills itself with potable water. It is based on an innovative tech that holds promise to change the way we produce and consume water.

Patel has designed a 3D-printed apparatus which uses moisture from the air to create water. He is the first person from Asia to do so. This self-filling water apparatus produces pure drinkable water from thin humid air. The technology is based on Thompson’s effect in association with Peltier effect.

The device contains a smart condenser that is connected to sensors and an on-board computer. It comprises of a fan that absorbs thin humid air and transfers it to the condenser. The humid air is then converted into water through a computerized sensor with respect to atmospheric parameters. The water is further passed through several membranes to remove dust and other unnecessary materials.

After the completion of this process, the water undergoes a UV treatment that kills all germs and microbiological activities after which the water is mineralised and stored in the attached tanks. Patel says that the device can produce clean and healthy water. The development cost was INR 12,000 which may come down in commercial production.

In an hour the device can extract nearly 1.8 litres of water from air. The apparatus can extract high quality water even if the air is polluted. It is powered by a 12 V and 6000mAh Li-ion battery pack which can be recharged from any power outlet or even through solar device. The device is beneficial where water resources are in limited quantities. Jawwad Patel has also been nominated for the National Youth Award 2015-16 and Dr APJ Abdul Kalam Excellence Award 2016.