How small do you think the smallest autonomous computer in the world actually is? The Michigan Micro Mote (M^3) measures all of 1 millimetre cubed, making it smaller than a grain of rice.

The result of 10 years of work by University of Michigan researchers, the M^3 is rather capable despite its minuscule dimensions. It can take pictures, read temperatures, record pressure and even communicate with other computers via radio. Such capabilities make it a "complete" computer.

“To be "complete," a computer system must have an input of data, the ability to process that data-- meaning process and store it, make decisions about what to do next-- and ultimately, the ability to output the data.” team member Prof. David Blaauw says. “The sensors are the input and the radios are the output. The other key to being a complete computer is the ability to supply its own power.”

Being so small, the processor powering the M^3 (dubbed "Phoenix") requires very little energy to operate-- it uses just 500 pico-watts in standby mode, and its solar-powered battery charges using ambient light.

What uses can the M^3 find? The researchers predict a future where the M^3 is injected into the human body to provide medical readings, such as ECG, pressure and temperature. It can also go down deep oil wells to sense remaining oil resources, not to mention more obvious applications within smart buildings and the Internet of Things.

The M^3 is ready for mass production, although the team behind it has already set its sights for an even more ambitious project-- "smart dust," near-invisible specks of sensor-laden computers that sound like something straight out of science fiction.

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