

The screenshot shows the IET Engineering Communities website. The top navigation bar includes links for 'Login or Register', 'Join The IET', 'Shop', 'Help', 'A-Z', 'Contacts', and 'Home'. A search bar is located on the right. Below the navigation bar, there are links for 'The IET Engineering Communities', 'Careers & Education', 'Policymakers & Media', 'Events & Venues', and 'Publishing & Inspec'. The main content area is titled 'ENGINEERING COMMUNITIES Management' and features a sub-header 'Services supporting the growth of knowledge in engineering and technology'. A 'Case Studies' section is highlighted, with a sub-header 'Engineering Management' and a date 'June 2007'. The text in the Case Studies section reads: 'The future of technology depends on innovation and here we take a look at a few companies who are working on some exciting new developments, ranging from a new type of atomic clock to a flexible foil that's an interactive touchscreen. By Beverly La Ferla'. On the left side, there is a sidebar with the IET logo and a list of 'Industry Sectors' including 'Management sector: Technical Articles, Industry News, Events & Training, iet.tv - Event Webcasts, Website Directory'.

Tick tock, time for a better clock

OptiSynx have developed an alternative to the Caesium atomic clock that is accurate to one second in 30,000 years

Being late is fine – if you're not bidding in an online auction or buying shares. Some places, however, rely on second-by-second timing to clinch deals and even a single second could make a huge difference.

Set up in July 2006, OptiSynx have developed a new type of clock. Dominic Mikulin, CEO, explains: "The big problem with time at the moment is that nothing has changed in a long time." The Caesium atomic clock is currently the most accurate clock available but it is very expensive, very difficult to use and very difficult to run, as well as costing up to half a million dollars, so people tend to opt for the combined Rubidium and GPS clock, which is the most popular alternative. However, Rubidium is only accurate to one second in a few months and the GPS is used to correct it because satellites contain Caesium clocks. OptiSynx's clock only costs a few thousand dollars and is accurate to one second in 30,000 years. "We have the performance of Caesium for the cost of Rubidium," he adds.

The company's clock uses laser diodes and fibre optics. "The telecoms industry did all the research for us," says Mikulin, "but the company's founder, Dr Jeremy Sosabowski, had the true Eureka moment when he combined the two to produce the clock."

The biggest market for OptiSynx's clock is probably the communications industry. Mobile phone base stations need to synchronise between stations to ensure correct transfer of calls and if they are not, calls could be lost. Stock exchanges are the next biggest: "There are thousands of trades every second in online stock exchanges and if someone in London and someone in New York presses 'buy' at exactly the same time and the clocks aren't synchronised," explains Mikulin, "one person will appear to have bought before the other. One person will have made a lot of money, one person would have lost it. For that single reason, very accurate clocks are a necessity these days."

"Other applications include time-stamping for files which is becoming more widespread today as it becomes ever more important to audit and verify when something is created," he says. He estimates the market to be about 700 million dollars.

OptiSynx currently have nine business angels who contributed to their early stage funding but are looking for more funding to speed up their operations: "We're still in development right now. Our first product should be out at the end of next year although we are eagerly looking for more funding. If we get more money we could roll out faster."

OptiSynx made the top ten companies in last year's 'Running the Gauntlet' competition organised by the East of England Development Agency's (EEDA).

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Don't be late – find out how accurate this clock is on IET.tv at www.theiet.org/optisynx