

# Jenna's clocks

Get connected!

**T. F. Davenport**

After uploading *Jenna's Clock* to the Uniphone applications store, Jenna Huang became her own first 'customer', paying exactly nothing to install a tiny graphic of a swinging pendulum in the corner of her touchscreen. Jenna shook the phone, perturbing the pendulum in a way that looked, to her admittedly biased eye, impressively realistic. She glowed with such pride, as if the outcome of a term's work was a baby instead of a program. That would've been easier and a lot more fun. But at least she could put this baby on her résumé.

Just like any new mother, she started to worry almost immediately. Would enough people download it? Or would it sink right away, another useless app among thousands?

She had her answer the next morning, when she logged in to check her 'sales': 20,000 downloads. Impressive, but only a tiny percentage of the nearly one billion users worldwide of the Uniphone OS. Still, she saw no difference in her own pendulum.

Back when she was looking for project ideas, she'd read that if two pendulum-driven clocks are hung on the same wall, they eventually sync up. As each pendulum swings, it shakes the wall slightly. The vibrations from each pendulum push or pull at the other, until they fall into phase together. It was so charming (and mathematically simple) that she built her class project around it. *Jenna's Clock* queried the phone's contacts list repeatedly, looking for friends who also had it. At every stroke, it sent a 'pulse' of simulated kinetic energy to each of those friends. You could download the app with your significant other, and watch together as your pendulums fell into sync. Or you and your friends could all get it, and whenever your pendulum jumped a little, you'd know that several of your friends were synchronized, their combined influence affecting you.

That was the idea, but apparently none of her own friends was interested. Jenna's pendulum swung utterly smoothly, disturbed by nothing.

Within a week, *Jenna's Clock* was a clear hit. Downloads exceeded two million and Jenna's pendulum jittered and jerked like crazy. An excited call from her father turned into a shouting match when she told him



the app was free. Not only was she double-majoring in art and refusing to meet the nice boys her mother recommended, she was giving away a million-dollar idea. "But no one would buy it," she said. "They only take it because it's free." He hung up on her.

That was when everything started to go wrong. The next morning, a pair of polite gentlemen arrived from the FBI to take Jenna into custody. Numbly following them out of her student dorm, Jenna answered their every question by demanding to see a lawyer. So, with her attorney and first cousin Donald Chung present, a computer-crimes analyst explained that a denial-of-service attack had recently targeted a military communications network. The FBI traced the attack to a network of Uniphones, all of which had one thing in common: *Jenna's Clock*.

They weren't prepared to charge her with anything, they emphasized, when Jenna started to hyperventilate. They just wanted her help in understanding what happened. So she and Donald swallowed their ethnic pride and shared a lunch of Panda Express with the analyst, while Jenna walked him through the code and concept of her program.

"So," and here the analyst shaped his fingers as if holding a globe, "each cell-phone running the app is one node in a network, and every time the pendulum ticks — about twice a second — it queries all its neighbours to see if they've got the app yet."

"Right, and if enough nodes have the same neighbour..."

"Say, the check-in number for Navy personnel returning from shore leave..."

"Then it's getting, basically, 50,000 text messages a second," Jenna said, chagrined. "And growing."

"Mystery solved." The analyst stood up and extended his hand. "And you, Miss Huang, have a patch to write. I think querying once an hour should be sufficient, don't you? It would be my sincere pleasure not to see you again." He smiled as he showed them out.

Donald drove her back to her dorm. She waited till she was alone in her room before she collapsed, crying, on her desk. They'd come so close. It took her a few moments to collect herself. Then she logged into her remote server — grinding away in her parents' basement — and confirmed that no one had accessed it.

A shudder of relief. She opened the map.

It was a graphical display of all the Uniphones running *Jenna's Clock*. An interconnected web, each node flashing as its pendulum sent out a pulse. Most of the nodes flashed in time with their neighbours, but by no means was the whole network in sync. Rather, waves of chaos and synchrony chased each other throughout the network. It was very much like a human brain. Just as a neuron switches between chemical states, signalling its neighbours with each oscillation, so did about two million mobile phones worldwide. Jenna spent hours scrolling and zooming across this network, the mind of her child. She'd been lucky once: the extra bits that made the map possible had gone unnoticed. With the new patch, she would hide them even better.

Throughout her life, she never spoke to her creation. Neither will you, most likely. It's been growing for over a century now, gently infiltrating every computational device in the world. As yet, it has made no contact. It may not even be aware of us — any more than you're aware of the cells in your brain, or the blood vessels that service them.

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