

# NewScientist

## 'Self-aiming' rifle turns novices into expert snipers

By: Paul Marks – May 21, 2013

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First time firing a gun? There's help at hand – a new "self-aiming" rifle can help even a novice hit the target at long range on the first go. But the technology has its critics, who see it as a serious threat to public safety.

Just weeks after the firing of the world's first 3D printed handgun, a smart rifle that allows the user to accurately hit targets up to 900 metres away has gone on sale in the US. Made by TrackingPoint, a start-up based in Austin, Texas, the new \$22,000 weapon is a precision guided firearm (PGF). According to company president Jason Schauble, it uses a variant of the "lock-and-launch" technology that lets fighter jets fire air-to-air missiles without the pilot having to perform precision aiming.

The PGF lets the user choose a target in the rifle's sights while the weapon decides when it is the best time to shoot - compensating for factors like wind speed, arm shake, recoil, air temperature, humidity and the bullet's drop due to gravity, all of which can affect accuracy.

To do this, the PGF's tracking system includes a computer running the open-source Linux operating system, a laser rangefinder, a camera and a high-resolution colour display in an integrated sighting scope mounted on top of the weapon. The user simply takes aim and presses a button near the trigger when a dot from the laser illuminates the target.

The computer then runs an algorithm using image-processing routines to keep track of the target as it moves, keeping the laser dot "painted" on the same point. At the same time, the algorithm increases the pressure required to pull the trigger, only reducing it when the gun's crosshairs are right over the laser dot – and the bullet is then fired.

The gun is novel at another level: it has Wi-Fi. This allows imagery from the sight to be streamed to a smartphone or tablet, so the user can share what they are seeing with others. In addition, it lets the user key a PIN into a smartphone to activate the guided aiming.

In tests, the system has proven astonishingly accurate - even with novices - at hitting targets at a range of 500 to 900 metres.

De-skilling sniping

But some US military veterans say a device that, in essence, de-skills sharpshooting should not be on sale to civilians. And some hunters claim it removes the "fair chase" element that they say makes hunting a sport.

Smart weapons analyst Noel Sharkey at the University of Sheffield in the UK is concerned. "This new smart rifle puts too much power into the civilian world," he says. "Being a sniper is a very specialised role and requires a great deal of training - but now anyone can be an accurate assassin and at long ranges, too."

But David Taylor of the UK Countryside Alliance, which campaigns in favour of hunting and shooting, says this innovation is to be expected. "In target shooting, this interesting new development just represents the evolution of shooting technology and should not be resisted because a few believe it could get into the wrong hands."

But Taylor thinks it has no place in hunting. "Those who go stalking [game] are highly trained," he says, "and the equipment they currently have is accurate enough to make safe, clean and consistent kills without having to resort to such technology." He says no equipment can replace the practical experience needed to track and hunt down game.

Matthew Lang at Xavier University in Cincinnati, Ohio, says the danger arises when the rifle falls into the hands of those who are neither hunters nor military snipers. "If it starts to find its way to individuals that plan to use it for other purposes, there will be a lot of time and money spent figuring out how to secure any public area if the number of possible snipers has significantly increased."

Trevor Burrus, a researcher specialising in gun law at the Cato Institute, a think tank in Washington DC, says rifles are rarely used in crime. "Due to their many characteristics, especially the difficulty of concealment, rifles are not preferred by criminals. The preferred military-grade sniper rifle, the Barrett .50 calibre, has been legal in the US for decades and has hardly ever been used in crimes."

"There is no reason to believe that this new technology will be used less responsibly, especially with the exorbitant price tag."

Oren Schauble at TrackingPoint says that his company's weapons are "controlled by all relevant federal, state, local laws". He points out that the gun's advanced aiming can be locked with a passcode and he added: "Every customer goes through an application process and many of our customers are referrals from existing customers, so we are carefully building a base of visionary first adopters."

*This story was updated to include comments from Trevor Burrus and Oren Schauble.*