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Leonardo's Pushbike - The Ride by Ellsworth featuring NuVinci's Continuously Variable Planetary (CVP) transmission

from [Urban Transport \(109 articles\)](#)

April 13, 2007 A bicycle 517 years in the making? Well, perhaps not - [Leonardo Da Vinci's original mind-boggling sketches](#) of the first [Continuously Variable Transmission \(CVT\)](#) used a spiral shaped cog to achieve the goal of perfectly smooth gear ratio alteration. [NuVinci's CVP](#) transmission uses tilting balls to achieve a similar effect.

Still, the sixteenth century genius certainly inspired this creation, and it's a powerful marketing angle, so let's not get hung up on technicalities. The NuVinci CVP offers bicyclists an infinite range of gear ratio adjustment between its outer extremes, and has proven exceptionally easy to use as well as reliable over high-stress distance testing.

Traditional derailleur gear shifting systems are compromised in several areas:

- They shift poorly under load, meaning that the rider has to alter his pedal force to ensure a clean shift.
- The sideways movement of the chain at both the countershaft and drive shaft leads to alignment problems and issues with the chain coming off the sprocket.
- Gear ratios can't be altered if the cycle comes to an unexpected stop; the rider is forced to get the bike rolling in a higher gear and shift down.
- The two-lever gear system is confusing to beginners, and while as many as 30 ratios are available, it's not always clear how to choose the perfect ratio. Most



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riders end up using favourite ratios just to simplify the process.

The CVP suffers none of these faults; it is a simple, silent, effective and extremely intuitive system for the rider, as easy as turning up the volume on a radio. Twist the handlebar-mounted dial one way, while still pedalling hard, and the gearing smoothly increases until you reach the perfect ratio. Twist it the other way, even while you're stopped, and the gearing is lowered. No wondering if you're on the second or third front cog, no jumpy changes, and the chain stays perfectly straight whatever the ratio is.

It does have one clear disadvantage; the rear hub-mounted transmission is a few kilograms heavier than a top-flight derailleur system, at 4.16 to 4.28kg depending on mounting hardware. The extra weight would hardly be noticed by an average rider, but it rules the system out of serious racing competition.

This is why Ellsworth have decided to mount the NuVinci CVP transmission on a cruiser-styled cycle called simply "[The Ride.](#)" It's built for commuting, pleasure riding and covering distance in comfort. It also looks plain hot. "We found in our testing rides up and down Pacific and Mission beach that the styling of the bike drew peoples' attention first and foremost," said Ellsworth's Sommer Cartier, "and once they looked closer we were surprised how many were already aware of the NuVinci CVP system. This bike fascinates people, it redefines the cycling experience."

It would want to. At a recommended retail of US\$2995 for the chain drive model and US\$3995 for the lighter, belt drive "Signature Series" the pricing clearly reflects the exclusive, prototype nature of the cycles. Still, for those with the cash to spend, [the experience of riding one](#) is sure to be unique.

See [HowStuffWorks](#) for an excellent breakdown of how different types of CVT achieve the same goals.



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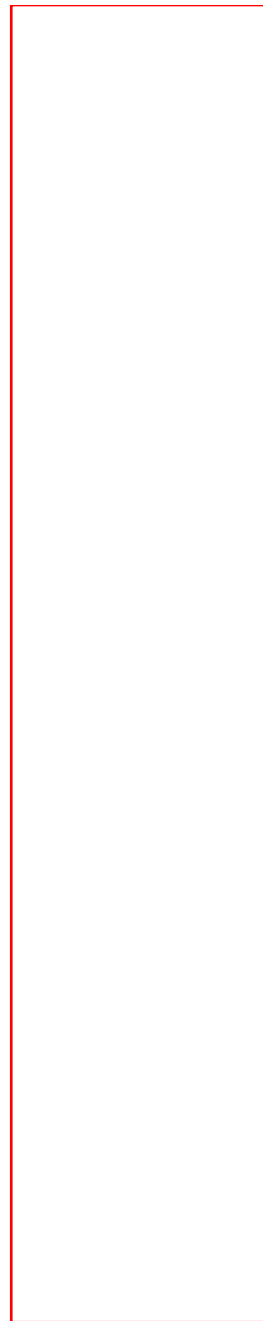
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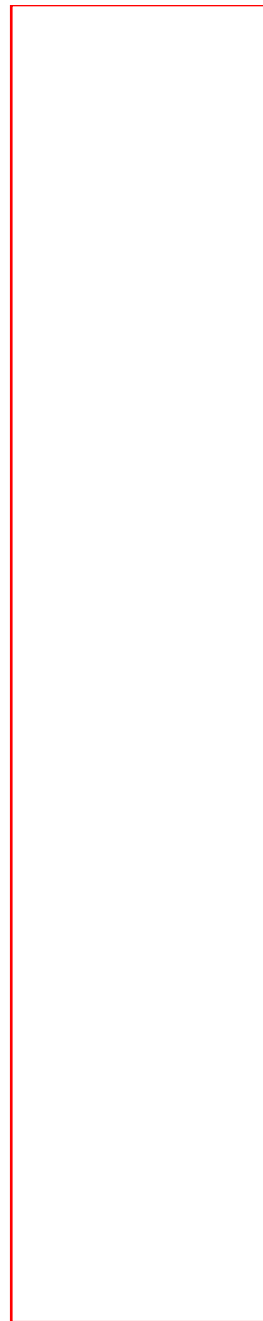
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