

PAPER ON RACETRACK MEMORY

SUBMITTED BY : SREEKANTH.V.R
S.PRAVEEN KUMAR

COLLEGE : Model Engineering College, Thrikkakara

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ABSTRACT :

What the paper deals is about the emerging new memory device that is the race track memory. It is one of technologies vying to become a universal memory in the future. It has got the potential to bring revolutionary changes in the field of networking, storage of data and communication technology.

Race track is mainly a nonvolatile memory device that can offer storage density higher than the compatible solid state memory devices like Flash RAM and similar conventional disk drives. It offers much high read/write performance. Racetrack memory uses spin-coherent electric current to move the magnetic domains along a perm alloy wires. It appears to scale too much smaller sizes than any current memory device. Racetrack Memory is one of a number of new technologies aiming to replace Flash, and potentially offer a "universal" memory device applicable to a wide variety of roles. Other leading contenders include MRAM, PCRAM and FeRAM. Their primary advantage is the lack of write endurance limits like those in Flash. This technology could enable a handheld device such as an mp3 player to store around 500,000 songs or around 3,500 movies - 100 times more than is possible today. Since racetrack memory has no moving parts, and, rather than storing data as ensemble of electronic charge, uses the "spin" of the electron to store data, it has no wear-out mechanism and so can be rewritten endlessly without any wear and tear. Our paper will discuss some large scale applications, including the working of a racetrack. Racetrack memory is a "**work in progress**", with the underlying technology still in a prototype phase, and being developed by hundreds of researchers and software engineers around the world.