A Java Ring is a finger ring that contains a small microprocessor with built-in capabilities for the user, a sort of smart card that is wearable on a finger. Sun Microsystem's Java Ring was introduced at their JavaOne Conference in 1998 and, instead of a gemstone, contained an inexpensive microprocessor in a stainless-steel iButton running a Java virtual machine and preloaded with applets (little application programs). The rings were built by Dallas Semiconductor. Workstations at the conference had ring readers installed on them that downloaded information about the user from the conference registration system. This information was then used to enable a number of personalized services. For example, a robotic machine made coffee according to user preferences, which it downloaded when they snapped the ring into another ring reader.

Although Java Rings aren't widely used yet, such rings or similar devices could have a number of real-world applications, such as starting your car and having all your vehicle's components (such as the seat, mirrors, and radio selections) automatically adjust to your preferences.

The Java Ring is an extremely secure Java-powered electronic token with a continuously running, unalterable real-time clock and rugged packaging, suitable for many applications. The jewel of the Java Ring is the Java iButton -- a one-million transistor, single chip trusted microcomputer with a powerful Java Virtual Machine (JVM) housed in a rugged and secure stainless-steel case.

The Java Ring is a stainless-steel ring, 16-millimeters (0.6 inches) in diameter, that houses a 1-million-transistor processor, called an iButton. The ring has 134 KB of RAM, 32 KB of ROM, a real-time clock and a Java virtual machine, which is a piece of software that recognizes the Java language and translates it for the user's computer system.

The Ring, first introduced at JavaOne Conference, has been tested at Celebration School, an innovative K-12 school just outside Orlando, FL. The rings given to students are programmed with Java applets that communicate with host applications on networked systems. Applets are small applications that are designed to be run within another application. The Java Ring is snapped into a reader, called a Blue Dot receptor, to allow communication between a host system and the Java Ring.

Designed to be fully compatible with the Java Card 2.0 standard the processor features a high-speed 1024-bit modular exponentiator for RSA encryption, large RAM and ROM memory capacity, and an unalterable real time clock. The packaged module has only a single electric contact and a ground return, conforming to the specifications of the Dallas Semiconductor 1-Wire bus. Lithium-backed non-volatile S RAM offers high read/write speed and unparallel tamper resistance through near-instantaneous clearing of all memory when tampering is detected, a feature known as rapid zeroization.

Data integrity and clock function are maintained for more than 10 years. The 16-millimeter diameter stainless steel enclosure accommodates the larger chip sizes needed for up to 128 kilobytes of high-speed nonvolatile static RAM. The small and extremely rugged packaging of the module allows it to attach to the accessory of your choice to match individual lifestyles, such as key fob, wallet, watch, necklace, bracelet, or finger ring.