Numerous technologies are advancing at an unimaginable rate and its not possible to cover all of them in this note

Some of these technologies are:

1. Intelligent sensors and wireless sensor networks

* Medical instrumentation
* Factory & Office automation
* Automotive & Transformation
* Telecommunications
* Structural fatigue monitoring

1. Intelligent cars and smart highways

* Safety critical systems (ABS ect.)
* Electronic safety control
* Rollover protection
* Autonomous predictive cruise control
* Intelligent speed adaptation
* Lane-change assist

1. Tele-health (wireless healthcare)

* Wearable sensors for monitoring vital body signals:heart rate, blood pressure
* Wireless interface for data transfer to PC, cell-phone, doctors office with real time indication of any abnormal behavior and recommended action
* Kiosks with real time capability to monitor vital body signs and interact with individual as well as doctors office
* Provide real time vital body signs information to coaches in deciding whether to leave a player in or pull him out (e.g: endurance sports like mma and fruitball)
* Wirelessly monitor conditions of vehicles (tire pressure, engine heat, rpm, ect.) to determine service schedule

1. Microelectromechanical systems (MEMS)

What is mems?

* Imagine a machine so small that it is imperceptible to the human eye.
* Imagine working machines with gears no smaller than a grain of pollen
* Imagine these machines being batch fabricated tens of thousands at a time, at a cost of only a few pennies each
* “These micromachines have the potential to revolutionize the word in a way that integrated circuits did”.
* Creates integrated electromechanical systems that merge computing with sensing and actuation.
* Mechanical components have dimensions in microns and numbers in millions

Applications of MEMS

Inertial measurement

Automotive safety

Aircraft navigation systems

Platform stabilization

personal/vehicle navigation

Distributed sensing and control

Condition based

* Nanotechnology
* Clean technology
* Robotics and Automation