

PAPER PRESENTATION

BY

SONI KUMARI

BRANCH:EN&TC

6TH SEM

DATE:25.02.2008

MEMS
**“MICRO ELECTRO
MECHANICAL SYSTEM”
TECHNOLOGY**

**A
REVOLUTIONARY
TECHNOLOGY**

INTRODUCTION

- COMBINATION OF SEMICONDUCTOR PROCESSING AND MECHANICAL ENGINEERING
- DEALS WITH MINIATURIZING
- ALIASES USED (MST -> EUROPE)
- (MICRO MACHINE -> ASIA)

DEVELPOMENT

- HISTORY
- 1ST MEMS -> IN 1967 IT WAS A GOLD RESONATING MOS STRUCTURE
STABLISHED IN 80'S MID

PRESENT AND FUTURE ASPECTS

- PRESENT SCENARIO-
- PRODUCED CHIP OF 0.13 MICRONS
- INTEL P-IV (RANGING FROM 2.2 TO 2.4 GHz)
- PREDICTION-> MINIMUM FEATURE SIZE WILL SHRINK TO 0.07 MICRONS BY 2013

DESCRIPTION

- MEMS WORKS ON THE INTEGRATION OF MECHANICAL SYSTEM WITH ELECTRONICS ON SEMI CONDUCTOR USING MICROFABRICATION TECHNOLOGY
- SENSOR -> GATHERS INFORMATION
- ELECTRONICS -> PROCESS THE INFORMATION AND DIRECT THE ACTUATOR TO RESPOND TO CONTROL THE ENVIRONMENT FOR DESIRED OUTCOME

APPLICATION OF MEMS

- Micro Robots
- Application in space Technology
- Accelerometers
- Military and Surveillance uses
- Other Consumer Uses (Sports, Computer Systems, Blood Sensors etc.)

MICRO-ROBOTS

- It is a miniaturized, sophisticated machine designed to perform a specific task with precision.
- Dimensions range from a fraction of millimeters up to several millimeters.

WORLD'S LIGHTEST FLYING MACHINE



- Helps in sensing image and keep the m/c stable during the flight in mid air
- The machine is based on the MEMS technology.
- Weighs only 12.3g
- Power consumption -3.5W
- Dimensions-130mm diameter & 85mm height



Figure 5 Mars Rover.



Figure 4 Micro-flying Robot and Mobile Base Concept

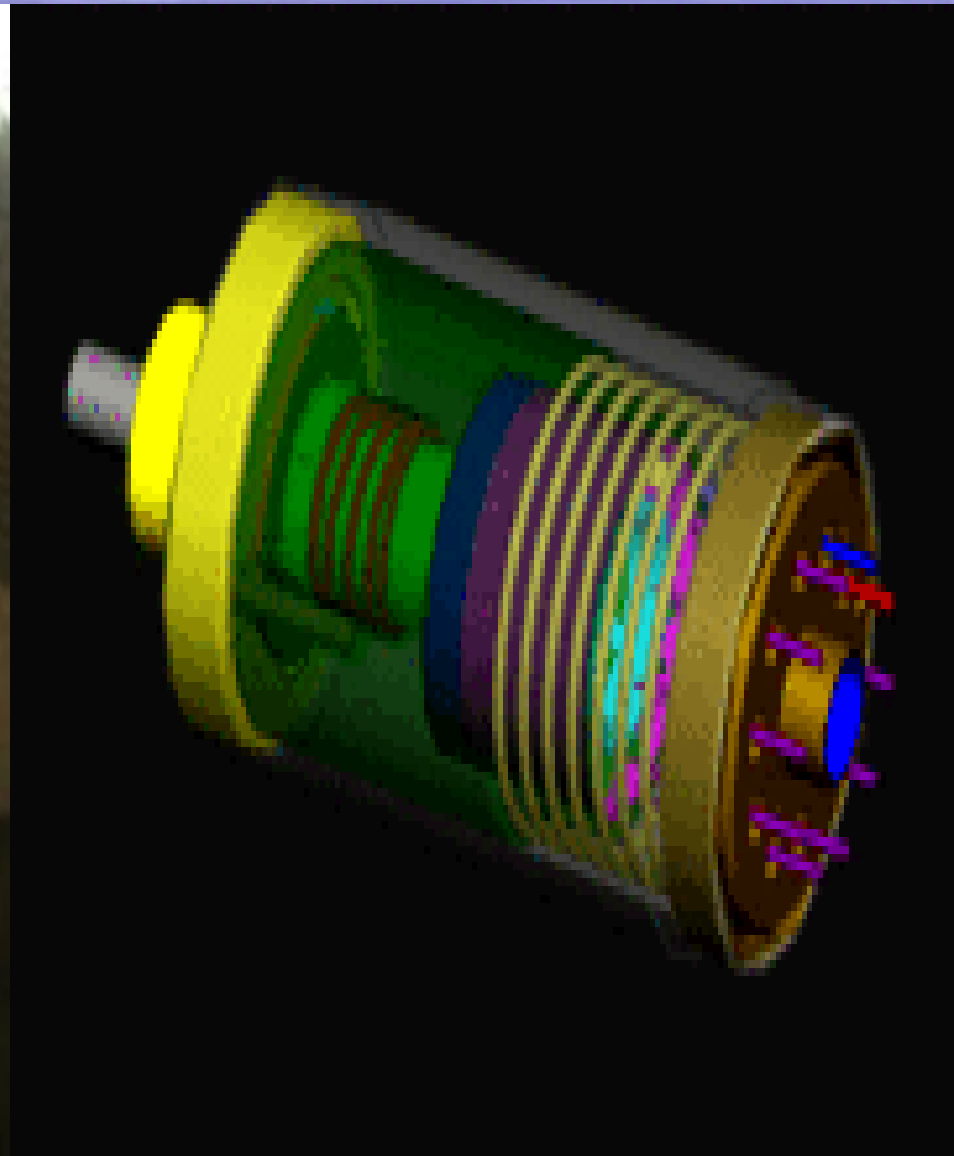
NASA'S FEATURED PROJECT

FEATURING SPACE APPLICATION

PLANNED TO BE SENT IN 2009

ACCELEROMETERS : HELPS IN PREVENTING ACCIDENTS

For crash detection



ADVANTAGES

- Low power consumption
- High efficiency
- Incredible accuracy
- Works at a very small scale in a few mm
- Cost effective
- In reach of general

LIMITING FACTOR

- FABRICATION PROCESS TAKES MORE TIME.....
- BUT THIS CAN BE DEALT WITH USING LASER TECHNIQUE

**ONE DAY MEMS WILL
PROVED TO BE THE
SOLUTION OF JUST
EVRYTHING.....
SEIKO EPSON**

THANK YOU