

Barbara Rose - Research Professor: Dr. Paul Oh Graduate Assistants: Bill Green and Keith Sevcik

## First Annual Indoor Aerial Robot Competition

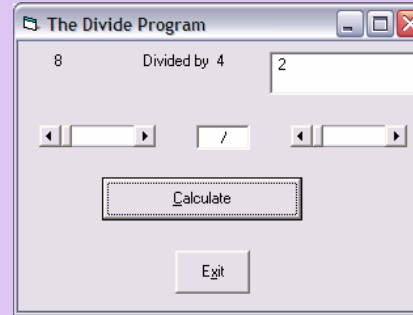
### Introduction

#### Indoor Aerial Robot Competition

- First ever indoor aerial robot competition
- Teams provided with low-cost aerial robot kit (blimp, tri-turbofan unit, remote control)
- Each team of four students devises own strategies to meet the contest challenges
  - Remote control strategies

#### Design Focuses

- Autonomous control strategies
- Remote control strategies



Screen from Visual Basic Divide Program



Flight simulator from tour at Environmental Tectonics

### Assembling the blimp

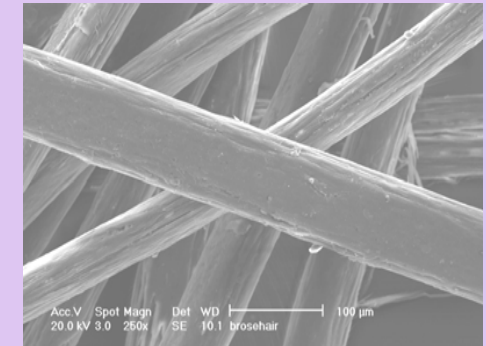
- Inflate balloon with helium
- Attach the Tri-Turbofan Unit to the Balloon



Control Motor with fans and plastic container for sand



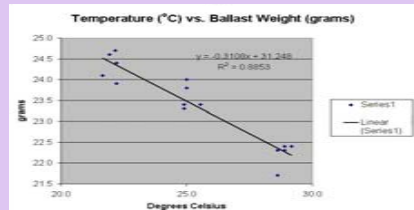
Nanotechnology - SEM (Scanning Electron Microscope)



My hair as seen from the SEM laboratory

### Actual Experiments and Results

•Five neutral buoyancy measurements were made in each of three different temperature environments and the results were plotted on a graph.



•For each of the 5 experimental readings, sand was added or removed from the ballast container on the gondola to adjust the blimp to neutral buoyancy. Temperature of the room and weight of ballast were recorded as seen on the graph.



Steve and myself with the blimp



Our kids helping with the experiment



Biotechnology – Artificial hip used today (top) vs new materials being researched for future hip replacement



Medical Robotics - Experimental system for beating heart surgery