OPTICAL GLOVE AND ANS-VER 1.0

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Advancement In Computing Technology

Computers: A machine capable of performing numerical calculations with the help of a mechanical computing device.
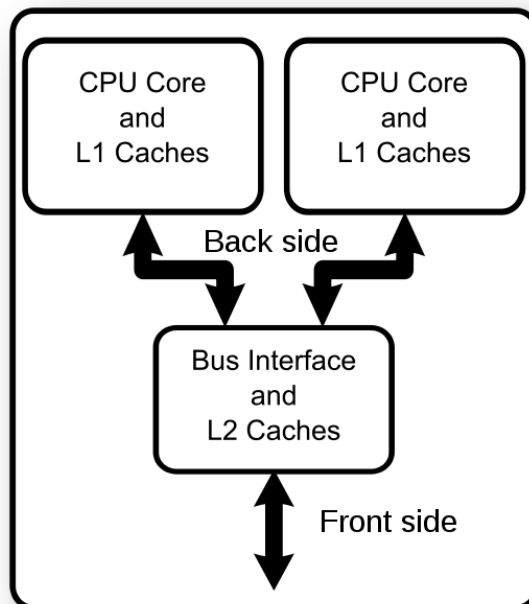
**Where the modern technology is heading towards???**

What we want??

1) *Increased compactness*

2) *Increased user-friendly interfaces (development of better GUI's)*

3) *Reduced heating*

4) *Increased throughput (amount of work that can be done in a given time).*

5) *Better multitasking capabilities.*

Advancement in Processer capabilities:

-Multi Core systems: *Multi core processors have two cores that can handle executing processes on one chip. Typically each core has its own L1 cache (used as storage for decoded instructions) and they will share L2 cache (the amount of data a processor is capable of storing waiting to be processed). These chips are found in PC and Laptops now days (CMP-Chip Level Multiprocessing).*

CPU Core and L1 Caches

CPU Core and L1 Caches

Back side

Bus Interface and L2 Caches

Front side

-Multiprocessor systems: *Multi processors are multiple chips that are plugged into the mother board, each chip with have its own cache and none of it is shared (SMP-Symmetric Multiprocessing). These are usually used in server applications or for developers. They are not for gaming and most home users (there are always exceptions).*
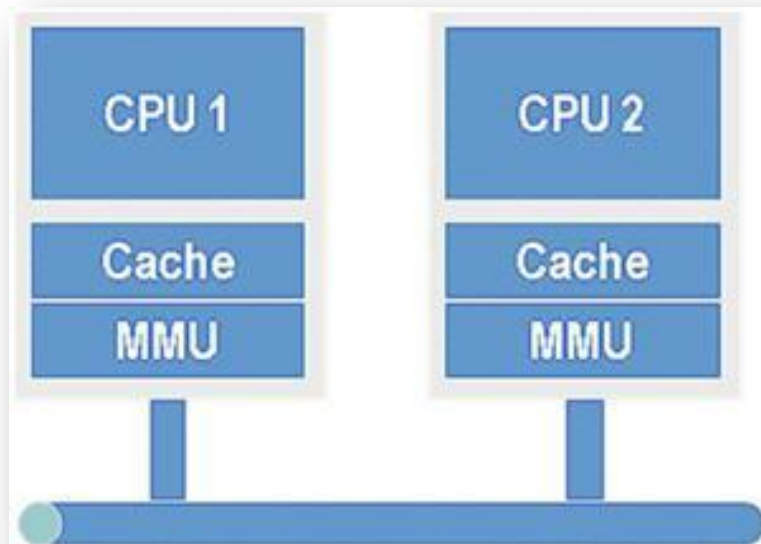
MODERN DAY I/O Devices and peripherals

Our Objective:

1) To make our computing more intuitive so that need to "LEARN" them is eliminated.

2) To interact with computing devices just like we do with normal objects.

3) To redesign the present hardware into a normal devices/objects like glove, pen, glass etc.

4) To integrate artificial intelligence with our I/O devices so that they can respond to our gestures.

5) To enable faster data transport.

6) To integrate sixth sense technology.

7) Last but not the least – "To merge digital and physical worlds!!!"

Demo On Optical Glove

What's Optical Glove??

Nothing big!!! Nothing small too :P – A simple redesign of normal optical mouse in an attempt to make it more intuitive in use.

How does optical mouse work??

1) *Developed by Agilent Technologies and introduced to the world in late 1999, the optical mouse actually uses a tiny camera to take 1,500 pictures every second.*

2) *Able to work on almost any surface, the mouse has a small, red-light-emitting diode (LED) that bounces light off that surface onto a complimentary metal-oxide semiconductor (CMOS) sensor.*

3) *The CMOS sensor sends each image to a digital signal processor (DSP) for analysis. The DSP, operating at 18 MIPS (million instructions per second), is able to detect patterns in the images and see how those patterns have moved since the previous image.*

4) *Based on the change in patterns over a sequence of images, the DSP determines how far the mouse has moved and sends the corresponding coordinates to the computer. The computer moves the cursor on the screen based on the coordinates received from the mouse. This happens hundreds of times each second, making the cursor appear to move very smoothly.*

How to convert mouse into a glove??

Steps to make Optical Glove:
1)

DELL Vostro 400 optical wired mouse internal view - top and bottom covers
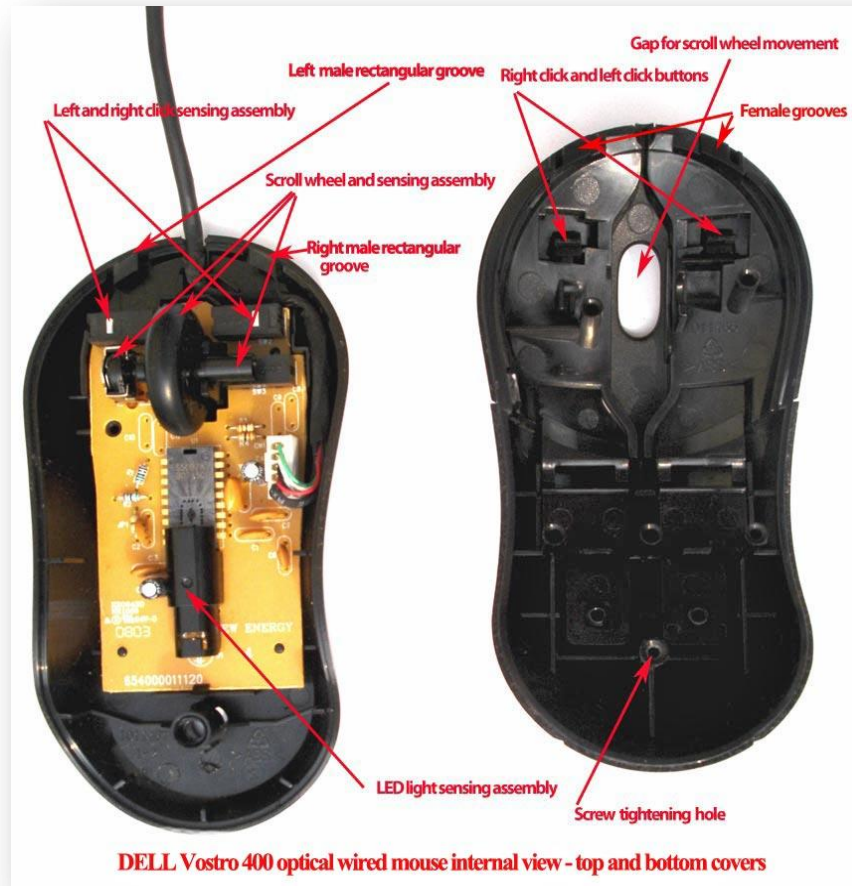
2)

3)

4)

5)

6)

Autonomous Navigation System
VER-1.0

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http://robotronics.yolasite.com

Some Snaps

http://robotronics.yolasite.com
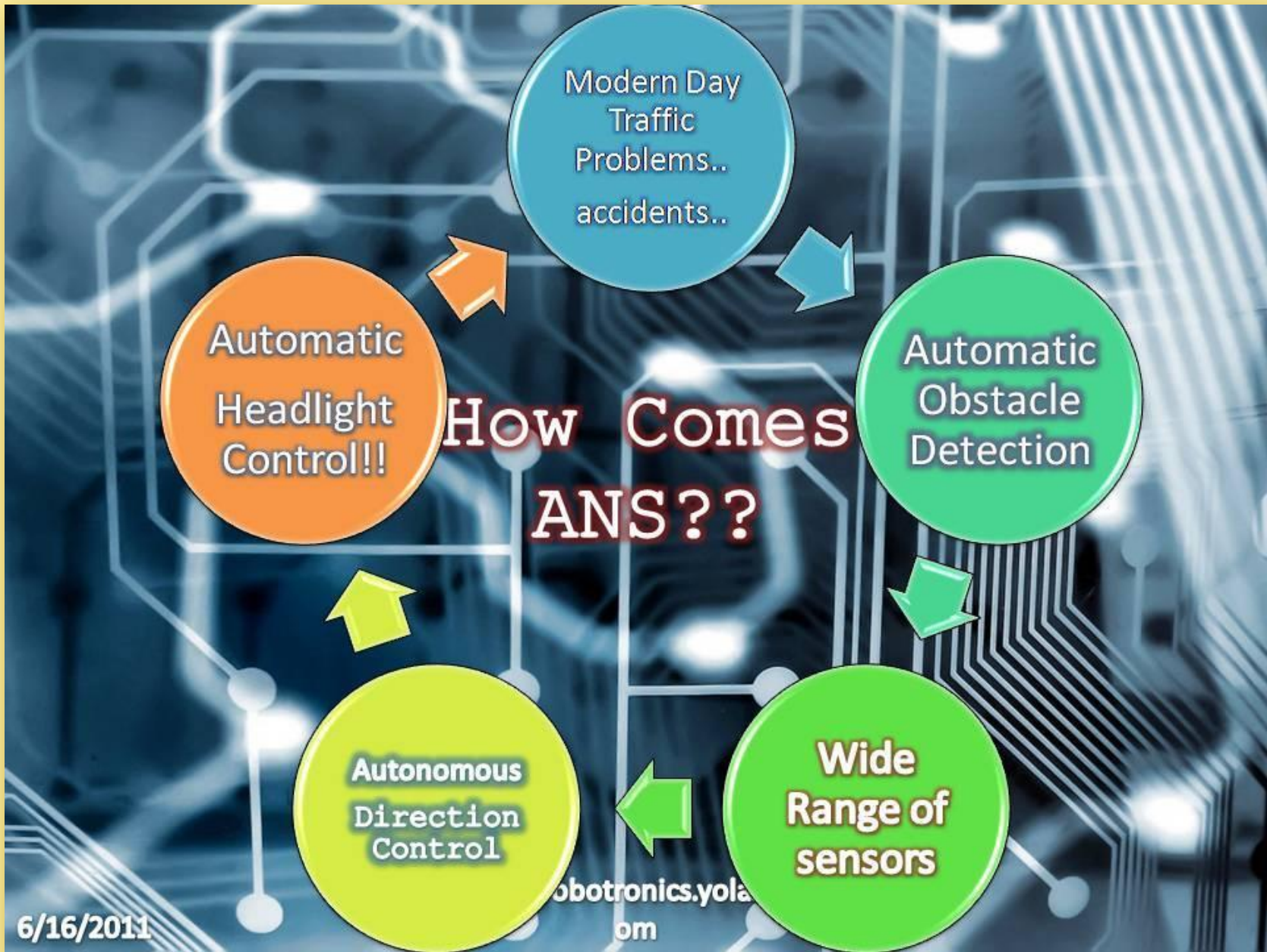
TECH SPECS

1) Based on AVR Atmel Mega series.

2) Entirely reprogrammable.

3) Has 16MHz clock rate.

4) Uses UART protocol for PC and wireless comm.

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Sensors

1) LDR- Light Dependent Resistor for sensing the intensity of light.

2) PIR- Pyroelectric(Heat) Passive Infrared Sensor for detecting human presence.

3) LM35D- Temperature Sensing IC.

4) IR sensor array- To detect the obstacle.

5) TSOP IT Sensors- TO find paths.

ANS DEMONSTRATION......

MICROSOFT VIDEO......

ACYUT VIDEO......