Newsletter January 2007
DRONACHARYA COLLEGE OF ENGINEERING

Special Edition by Department of Electronics and Communication Engineering

From Editor's Desk :

The Jan 07 issue of the News Letter wishes viewers a new year orchestrated by hopes of high voltage , heritage, of happiness bloom of health , zoom of zeal , pampering prosperity and series of scintillating successes the like of which were neither tasted , nor witnessed ever before . May 7 stars in the Constellation, 7 colours in the rainbow, 7 suras of goddess Sarswati's lute, sweet dreams of going across the 7 seas - all make a criss-cross to fill your life with the rarest of the rare jubilance. Our aspirant super achievers have manifested a steady sturdiness in their studious attitude undampened by the chilly winter winds and unengulfed by frantic fog and frost.

The magnanimous Management, the patronizing Principal, the sagacious Seniors, the dedicated HODs , the devoted Faculty and other sincere Staff members look forward hopefully to witness the career-graph of our academic stalwarts further elevated to enviable heights of a galaxy of glories and gorgeous goals . This year a large number of Dronacharyans have resolved to go to prestigious foreign Universities in U.S. , U.K., Australia, Canada and other far flung destinations . We wish our budding Engineers get a wider exposure and extend their range of knowledge at overseas seats of higher learning. But let them not forget the duty they owe to the country of their origin and their affectionate Alma mater and all associated with it.

"Let the brain drain ultimately change into brain gain" averred our Hon'ble Prime Minister during his recent address at Annamalai University. The declaration that the funds for the development of Science in the country will be doubled, comes as a ray of hope for all those whose sensitiveness towards Science has become touchy.

Editor
(Dr.R.C. Narula)

From HOD's Desk :

I feel privileged to present the Jan month's web report on behalf of E&CE Department that presents a balanced blend of faculty members. The Department has taken several new initiatives such as faculty development programme, student's personality development and grooming programme. Our goal is to develop smart and efficient Electronics and Communication Engineers who canface the challenges and shoulder the responsibility of the future and take the country to greater heights. The teaching staff is fully involved in all the activitiesof the Department. The Department has joined hands with industry at Faridabadand other prominent industrial zones and taken up industrial projects to make technology flow from college to industry. Presently our two teams of students are engaged in developing two projects with industry under the able guidance of our faculty. Department is conducting *National Seminar on Data Communication & Networking (NSDCN-2007) on 19 Jan' 07.*

The objective of the Seminars is to bring together experts from academic institutions, industries and research organizations engaged in teaching, research, development and growth of technologies. Seminars will also include guest talks of eminent personalities from Academics and Industries.

Head of the Department
(Professor H.S.Dua)

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Live Projects Undertaken By Students:

LASER LINK COMMUNICATOR :

Projects of our students have always been unique which display deep understanding of the Electronics &Communication Engineering .Two of the important projects already accomplished by our students are illustrated and narrated below:

Aim of the Project:
Main aim of the project is to establish a communication link between the two ends which may be several kms. Apart. The project has following features:
- ▸ To set up a speech channel between two locations.
- ▸ To transmit the data in 'DTMF' mode using 12 keys input board.

Brief :
Basically this project deals with the transmission of speech and different types of data in various modes. The main component of this project is **'LASER DIODE'**.

The laser diode is best suited for such transmission schemes due to its important properties. After the current reaches a certain value referred as 'threshold current', it emits laser light which increases as input current increases. The analogue signal is received from the mike and is transmitted through laser and then reproduced by the speaker on the other side, after necessary demodulation. In 'DTMF' mode, one 12 keys input keyboard is used in the circuit and when the user presses any number, this data will be transmitted to the other end and displayed on seven segments display. In addition to these two applications, a signal from mobile phone can also be applied and following the same process of transfer of data the communication is achieved.

> **Team Members**
> ECE VIII Semester
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> 1. Navjeet Thakur (5510)
> 2. Abhishek (5192)
> 3. Anil Kumar (5518)
> 4. Sachin Taluja (5187)
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> *Project Guide: Mrs. A. N. Mahajan*
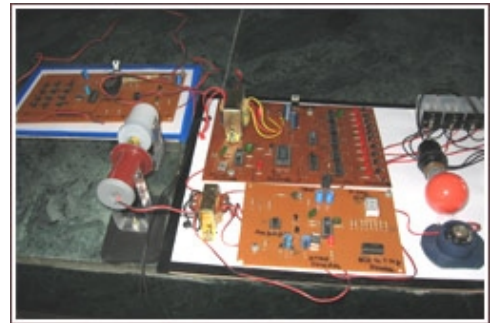
MICROCONTROLLER BASED OBSTACLE SENSING AND MISSILE LOCKING FOR AIRCRAFT :

Aim of the Project:
The main objective of this project is to understand the basic concept behind various accident prevention systems related to aircraft flights. These are basically based on IR sensors, which sense and give warning signals so as to reduce the chances of bird hits and the missile locking on the aircraft from the hostile camp.

Brief :
This project is basically related to the implementation of such a system in an aircraft, that protects the aircraft against the mishaps which may take occur due to the obstacles that come in the way of the aircraft.

The project ushers a new concept of the obstacle sensors which will help the pilot of the aircraft to prevent bird hits in a foggy weather or the missile lock on. Missile lock on means that the aircraft is being targeted by some hostile missile. The obstacle sensors used in this project help in the detection of obstacles coming in the way of the aircraft. The main components used in the project are Microcontroller and IR Sensors.

> **Team Members**
> ECE VIII Semester
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> 1. Navdeep Sharma (5131)
> 2. Rakesh Sharma (5153)
> 3. Nishu Jain (5140)
> 4. Nikunj Gupta (5139)
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> *Project Guide: Mr. P. Patnaik*

Technology Update :

A smart card is a card that is embedded with either a microprocessor and a memory chip or only a memory chip with non-programmable logic. The microprocessor card can add, delete, and otherwise manipulate information on the card, while a memory-chip card (for example, pre-paid phone cards) can only undertake a pre-defined operation.

Smart cards, unlike magnetic stripe cards, can carry all necessary functions and information on the card. Therefore, they do not require access to remote databases at the time of the transaction.

Today, there are three categories of smart cards, all of which are evolving rapidly into new markets and applications:

Integrated Circuit (IC) Microprocessor Cards

Microprocessor cards (also generally referred to by the industry as "chip cards") offer greater memory storage and security of data than a traditional mag stripe card. Chip cards also can process data on the card. The current generation of chip cards has an eight-bit processor, 16KB read-only memory, and 512 bytes of random-access memory. This gives them the equivalent processing power of the original IBM-XT computer, albeit with slightly less memory capacity.

These cards are used for a variety applications, especially those that have cryptography built in, which requires manipulation of large numbers. Thus, chip cards have been the main platform for cards that hold a secure digital identity. Some examples of these cards are:

- Cards that hold money ("stored value cards")
- Card that hold money equivalents (for example, "affinity cards)
- Cards that provide secure access to a network
- Cards that secure cellular phones from fraud
- Cards that allow set-top boxes on televisions to remain secure from piracy

Integrated Circuit (IC) Memory Cards

IC memory cards can hold up to 1-4 KB of data, but have no processor on the card with which to manipulate that data. Thus, they are dependent on the card reader (also known as the card-accepting device) for their processing and are suitable for uses where the card performs a fixed operation.

Memory cards represent the bulk of the 600 million smart cards sold last year, primarily for pre-paid, disposable-card applications like pre-paid phone cards. Memory cards are popular as high-security alternatives to magnetic stripe cards.

Optical Memory Cards

Optical memory cards look like a card with a piece of a CD glued on top - which is basically what they are. Optical memory cards can store up to 4 MB of data. But once written, the data cannot be changed or removed. Thus, this type of card is ideal for record keeping - for example medical files, driving records, or travel histories

Student's Viewpoint About The Department :

Megha Devgan
Roll No. 6143
VIII Sem. ECE

Electronics and Communication Engineering Department is in all aspects the most perfect Department of our college. Students here get a chance to develop their skills and talents in all fields and this is one thing which separates us from the rest. The ECE Department has well equipped labs, highly qualified and experienced faculty members who are always there to help and guide the students. A new subject of Embedded System Design has been introduced from this Semester. This subject is the latest in the field of Communication. Knowledge on Embedded System will definitely improve the prospects of students for better employment.

In the present digital age as we develop our skills here we are happy to note that maximum number of students from our college are being placed in reputed organizations like Infosys, Wipro, HCL etc. This is the result of our Faculty's endeavors who always guide the students on every aspect and encourage them to do better. I think that is the reason why we ECEians are going to be winners in every field.