Seminar on

Opportunities in Embedded Systems

Event name: Opportunities in Embedded Systems

Date of event: 15th April, 2024

Venue: Aryabhatta Seminar Hall, Dept of ECE,KSSEM

Number of participants: 50

Targeted Audience: 4th Year ECE Students.

The department of Electronics and Communication Engineering, KSSEM, had organized a technical talk on, **"Opportunities in Embedded Systems"** on 15th April, 2024 at 10:30AM IST.

The talk was delivered by **Sharat Kaul,** Chief Visionary Officer, Elfanze, **Dr.K Senthil Babu**, HoD of ECE, graced the event with their presence. The seminar was attended by faculty members Dr Kishore M and Mrs. Swati Sarkar and students.

Discussion:

Semiconductor Technology Nodes

Semiconductors are materials which have a conductivity between conductors (generally metals) and non-conductors or insulators (such as ceramics). Semiconductors can be compounds, such as gallium arsenide, or pure elements, such as germanium or silicon. Physics explains the theories, properties and mathematical approach related to semiconductors.

Valence Band

The energy band involving the energy levels of valence electrons is known as the valence band. It is the highest occupied energy band. When compared with insulators, the band gap in semiconductors is smaller

Holes and Electrons in Semiconductors

Holes and electrons are the types of charge carriers accountable for the flow of current in semiconductors. Holes (valence electrons) are the positively charged electric charge carrier, whereas electrons are the negatively charged particles. Both electrons and holes are equal in magnitude but opposite in polarity.

Mobility of Electrons and Holes

In a semiconductor, the mobility of electrons is higher than that of the holes. It is mainly because of their different band structures and scattering mechanisms.

Electrons travel in the conduction band, whereas holes travel in the valence band. When an electric field is applied, holes cannot move as freely as electrons due to their restricted movement. The elevation of electrons from their inner shells to higher shells results in the creation of holes in semiconductors. Since the holes experience stronger atomic force by the nucleus than electrons, holes have lower mobility.

Design Value Chain

Today's embedded systems design culture produces custom products from scratch. However, as electronic products become more complex and global competition demands shorter time to market, the industry is moving toward a design process that integrates commodity system-on-chip (SoC) platforms. The article looks at how we go about developing such integration-oriented SoC design flows and evolving a new platform-based design culture.

Photo Gallery

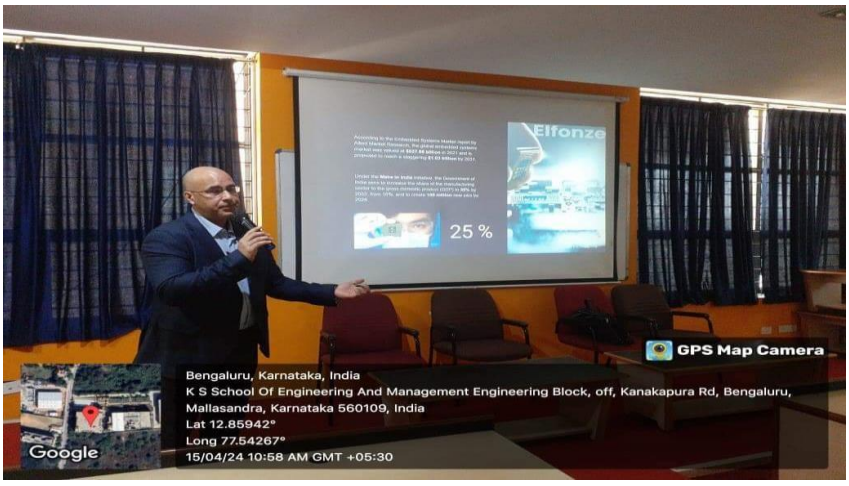

Fig 1. Speaker Addressing the Students

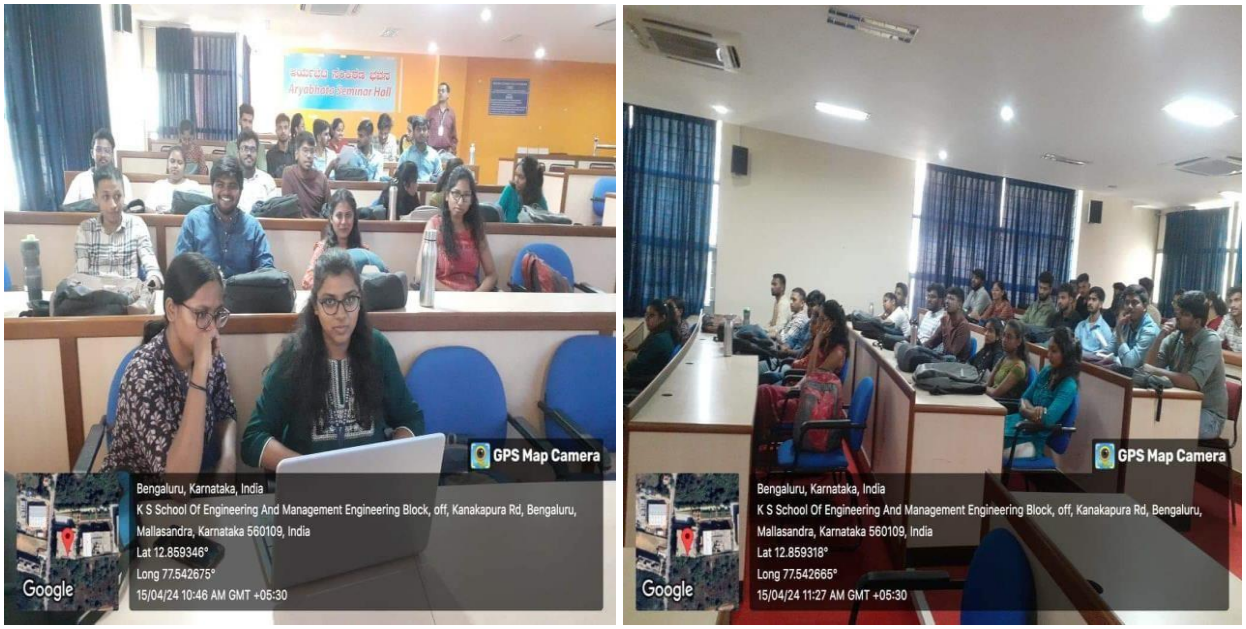

Fig 2. Students Participants in the Event

Why to Choose Embedded Systems as a Career

1. Easy to manage: Embedded systems meant for general use are easy to manage. ...
2. Fast performance: The performance of an embedded system depends on various factors.
3. They are smaller in size.
4. Hardware benefits and cost- effectiveness.
5. It can be used in mobile robots and military applications.

Co-ordinator

Signature of HOD, ECE

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