Editorial

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Biographical notes: Srikanta Patnaik is a Professor in Computer Science and Engineering, SOA University and the Chairman of IIMT, Bhubaneswar, India. He received his PhD in Engineering in the year 1999 from Jadavpur University, Calcutta, India. He has authored the book *Robot Cognition and Navigation: Experiment with Mobile Robot* and edited two volumes *Machine Learning and Perception* and *Innovations in Robot Mobility and Control* published from Springer, Germany. His name has been placed in the Marquis Who's Who in the World for the 2004. He has been nominated as the International Educator of the year 2005, by International Biographical Centre, Great Britain.

I am proud to say that the field of robotics is the main stream research among researchers from diverse field. It is also gaining popularity among school students. This issue presents six papers from various research areas of robotics.

Social robotics is one of the areas of robotics which makes use of communication in various environments such as space, nuclear plants, and hospitals, etc., where they are expected to communicate with other robots or with human beings. The first paper entitled 'Efficacy of gesture for communication among humanoid robots by fuzzy inference method' by Rajesh Doriya and team presented the imitation learning for behaviour based programming for robot teaching. They have presented gesture-based communication with fuzzy controller between two HOAP-2 robots. They have demonstrated the validity of this approach through kickboxing gestures of HOAP-2 robots, where they can respond to each other's actions.

The second paper titled 'Object tracking using parallel local colour histogram method' by C.S. Panda et al. presented a novel algorithm for object tracking in image sequences using local colour histogram method (LCHM). They have reported experimental result which shows that for retrieval of visually similar object from the image sequences, the local histogram method gives good retrieval precision with speed

Accurate localisation and mapping is a problem of great interest in mobile robotics. In most of the cases the environment is unstructured and is unknown beforehand. Building an autonomous robot in the real time environment is quite challenging and requires modelling and investigation. The third paper entitled 'Novel design for real time path tracking with computer vision using neural networks' by Abhinav Agarwal et al. presented the path tracking by using computer vision techniques and neural networks.

They have used a novel approach to steer the robot using stepper motor and implemented by transmitting the control commands wirelessly.

Gripper design for robots is a critical problem, which involves the design of actuation mechanism, gripper fingers and robot-grippers interface. It consists of material selection, contact force modelling and analysis for different types of grasp, arriving at suitable finger geometry, deciding upon number of joints for the finger, and choosing a proper actuation mechanism. M. Thangavel and J. Prakash in their paper titled 'Contact force analysis of deformable finger' presented the development of contact force models for various types of grasps for robot fingers.

Path planning is one of the highly studied problems in the field of robotics. It has been attempted using numerous statistical, soft computing and other tools. Rahul Kala et al. in their paper 'Evolving robotic path with genetically optimised fuzzy planner' presented the path planning of mobile robot using genetic algorithms (GA).

Vision based robot navigation is a challenging area of research and still lots of development is yet to come. The last paper titled 'Visual perception-based motion planning using road map' by P.K. Das and his team proposed a new method of road map based navigation. They have implemented a vision based motion planning of a mobile robot in a predefined road map, which is built with the left and right lane at the junction constructed with 90 degree with respect to the main lane.

I wish the researchers and readers of the robotics group shall be benefited from this issue.