Program Table of ICVGIP-2004, Kolkata

Date	09.00-11.00	9:30-10:30	10:30-11:00	11:00-11:40	11:40-13:00	13:00-14:00	14:00-15:30	15:15-15:30	15:30-16:10	16:10-18:10
Dec. 16, 2004	Registration	Inauguration	Tea	Plenary Session-I (P 1)	Computer Vision (CV 1-4)	Lunch	Computer Vision - I (CV 1.1-1.8) / Computer Graphics -I (CG 1.1-1.8)	Tea	Plenary Session -II (P2)	Image processing (IP 1-6)

	09.30-11.00	10:45-11:00	11:00-11:40	11:40-13:00	13:00-14:00	14:00-15:30	15:15-15:30	15:30-16:10	16:10-17:30
Dec. 17, 2004	Computer Vision-II (CV 2.1 - 2.18)	Tea	Plenary Session-III (P3)	Computer Graphics (CG 1- 4)	Lunch	Image Processing-I (IP 1.1 -1.18)	Tea	Plenary Session -IV (P4)	Industry Session (IN 1-4)

	09.30-11.00	10:45-11:00	11:00-11:40	11:40-13:00	13:00-14:00	14:00-15:30	5:15-15:30	15:30-17:30	17:30-18:30
Dec. 18, 2004	Image Processing-II (IP 2.1-2.18)	Tea	Plenary Session -V (P5)	Image Segmentation (IS 1-4)	Lunch	Image Processing-III (IP 3.1—3.18)	Tea	Biometrics and Related Application (BR 1-6)	Valedictory Session & IUPRAI GB Meeting

Conference Session

Plenary-I	Chair:
Thursday, December 16, 2004	**11:00—11:40**

Perception and Recognition of Faces - Human Capacities of Possible Relevance for Artificial Systems
Ken Nakayama, Harvard University, USA

Oral Session

Computer Vision	Chair:
Thursday, December 16, 2004	**11:40—13:00**

CV1	Geometric Structure Computation from Conics *Pawan Kumar Mudigonda, C. V. Jawahar and P. J. Narayanan*
CV2	A Framework for Activity Recognition and Detection of Unusual Activities *Dhruv Mahajan, Nipun Kwatra, Sumit Jain, Prem Kalra and Subhashis Banerjee*
CV3	Activity Representation Using 3D Shape Models *Amit K. Roy-Chowdhury, Rama Chellappa and Umut Akdemir*
CV4	High-Resolution Multiscale Panoramic Mosaics from Pan-Tilt-Zoom Cameras *Sudipta N. Sinha, Marc Pollefeys and Seon Joo Kim*

Poster Session

Computer Vision	Chair:
Thursday, December 16, 2004	**14:00—15:30**

CV1.1	Spatio-Temporal Grouping Models and Prominence Models in Perceptual Organization for Semantic Interpretation of Video Shot *Gaurav Harit and Santanu Chaudhury*
CV1.2	Active 3-D Object Recognition Using Appearance-Based Aspect Graphs *Sumantra Dutta Roy and Nirupama Kulkarni*
CV1.3	A Robust and Computationally Efficient Motion Detection Algorithm Based on $\Sigma-\Delta$ Background Estimation *A. Manzanera and J. C. Richefeu*
CV1.4	Handling Occlusions in Monocular Surveillance Systems *Prithwijit Guha, Nisarg Vyas, Amitabha Mukerjee and K. S. Venkatesh*
CV1.5	Estimating 3D Hand Position and Orientation Using Stereo *Afshin Sepehri, Yaser Yacoob and Larry S. Davis*
CV1.6	Modeling Signs Using Functional Data Analysis *Sunita Nayak, Sudeep Sarkar and Kuntal Sengupta*
CV1.7	IRIS Recognition Method Using Random Texture Analysis *Ali Ajdari Rad, Reza Safabakhsh and Navid Qaragozlou*
CV1.8	Mathematical Morphology Based Corner Detection Scheme: A Non-Parametric approach *R. Dinesh and D. S. Guru*

Poster Session

Computer Graphics – I	Chair:
Thursday, December 16, 2004	**14:00—15:30**

CG1.1	A proposed Glass-Painting Filter *Priti Sehgal and P. S. Grover*
CG1.2	Encoding Quadrilateral Meshes in 2.40 bits per Vertex *Pawel Kosicki and Asish Mukhopadhyay*
CG1.3	Stylistic Reuse of View-Dependent Animations *Parag Chaudhuri, Ashwani Jindal, Prem Kalra and Subhashis Banerjee*
CG1.4	MoCap Based New Walk and Climb Synthesis *Shrinath Shanbhag and Sharat Chandran*
CG1.5	Animation of Lip Motions and Facial Expressions using 3D Homeomorphic Models *Erdem Akagunduz and Ugur Halici*
CG1.6	Depth+Texture Representation for Image Based Rendering *P. J. Narayanan, Sashi Kumar P and Sireesh Reddy K*
CG1.7	The Fast Multipole Method for Global Illumination *Alap Karapurkar, Nitin Goel and Sharat Chandran*
CG1.8	Markerless Motion Capture from Monocular Videos *Vishal Mamania, Appu Shaji and Sharat Chandran*

Plenary II	Chair:
Thursday, December 16, 2004	**15:30—16:10**

P2	Document Image Understanding and Digital Libraries *Henry S. Baird*, Lehigh University, USA

Oral Session

Image Processing	Chair:
Thursday, December 16, 2004	**16:10—18:10**

IP1	Use of Linear Diffusion in Depth Estimation Based on Defocus Cue *Vinay P. Namboodiri and Subhasis Chaudhuri*
IP2	PCA Based Generalized Interpolation for Image Super-Resolution *C. V. Jiji and Subhasis Chaudhuri*
IP3	Design of A Robust Spread Spectrum Image Watermarking Scheme *Santi P. Maity, Malay K. Kundu and Tirtha S. Das*
IP4	Multi Example Based Image Retrieval: An ICA Based Approach *Jayanta Basak, Koustav Bhattacharya and Santanu Chaudhury*

IP5	Learning Layered Pictorial Structures from Video *M. Pawan Kumar, P. H. S. Torr and A. Zisserman*
IP6	Robust Segmentation of Unconstrained Online Handwritten Documents *Anoop M. Namboodiri and Anil K. Jain*

Poster Session

Computer Vision II	Chair:
Friday, December 17, 2004	**9:30—11:00**

CV2.1	Fitting Coupled Geometric Objects for Metric Vision *Paul O'Leary, Matthew Harker and Paul Zsombor-Murray*
CV2.2	Efficient Identification Based on Human Iris Patterns *A. Chitra and R. Bremananth*
CV2.3	Multiple Model Based Point Targets Tracking Using Particle Filtering in InfraRed Image Sequence *Mukesh A. Zaveri, S. N. Merchant and Uday B. Desai*
CV2.4	Study on Ultrasound Kidney Images Using Principal Component Analysis: A Preliminary Result *C. Karthikeyini, K. Bommanna Raja and M. Madheswaran*
CV2.5	Bidimensional Motion Charge Map for Stereovision Disparity Analysis *Jos´e M. L´opez-Valles and Miguel A. Fern´andez*
CV2.6	Estimation of Depth Information from a Single View in an Image *S. Murali and N. Avinash*
CV2.7	Object Identification and Colour Recognition for Human Blind *R. Nagarajan, G. Sainarayanan, Sazali Yaacob and Rosalyn R. Porle*
CV2.8	Partial Shape Retrieval by M-tree and a Bayesian Approach *Said Mahmoudi and Mohamed Daoudi*
CV2.9	Statistical Object Recognition for Multi-Object Scenes with Heterogeneous Background *Marcin Grzegorzek, Kailash N. Pasumarthy, Michael Reinhold and Heinrich Niemann*
CV2.10	Moving Object Segmentation in Video Using Stationary Wavelet Transform *Debashis Sen, Ajit Singh Sandhu and Harun Prasad Paramasivam*
CV2.11	Object Discrimination Using Stereo Vision for Blind through Stereo Sonification *G. Balakrishnan, G. Sainarayanan, R. Nagarajan and Sazali Yaacob*
CV2.12	Probabilistic Measures for Motion Segmentation *Venu Madhav Govindu*
CV2.13	Recognition of Partially Occluded Objects Using B-tree Index Structure: An Efficient and Robust Approach *R. Dinesh and D.S. Guru*
CV2.14	Hough Transform for Region Extraction in Color Images *Sarif Kumar Naik and C. A. Murthy*

CV2.15	3D Reconstruction of Retinal Blood Vessels from Two Views *Martinez-Perez M. E. and Espinosa-Romero A.*
CV2.16	A New Morphological 3D Shape Decomposition: Grayscale Interframe Interpolation Method *D. N. Vizireanu and R. M. Udrea*
CV2.17	EMoTracker: Eyes and Mouth Tracker Based on Energy Minimization Criterion *Shahrel A Suandi, Shuichi Enokida and Toshiaki Ejima*
CV2.18	On Learning Shapes from Shades *Subhajit Sanyal, Mayank Bansal, Subhashis Banerjee and Prem Kalra*

Plenary Session

Plenary - III	Chair:
Friday, December 17, 2004	**11:00—11:40**

P3	Real Time, Real World, Distributed Vision *Peter J. Burt*, Sarnoff Corporation, USA

Oral Session

Computer Graphics	Chair:
Friday, December 17, 2004	**11:40—13:00**

CG1	View Synthesis of Scenes with Man-Made Objects Using Uncalibrated Cameras *Geetika Sharma, Santanu Chaudhury and J. B. Srivastava*
CG2	Multi-Dimensional Transfer Function Design for Scientific Visualization *Sangmin Park and Chandrajit Bajaj*
CG3	Design of A Geometry Streaming System *Soumyajit Deb and P. J. Narayanan*
CG4	Efficient Light Field Based Camera Walk *Aviral Pandey, Biswarup Choudhury and Sharat Chandran*

Poster Session

Image Processing-I	Chair:
Friday, December 17, 2004	**14:00—15:30**

IP1.1	Content Based Image Retrieval in Presence of Foreground Disturbances *Rajashekhar and Subhasis Chaudhuri*
IP1.2	Skew Estimation in Digitised Documents: A novel Approach *D. S. Guru, P. Punitha and S. Mahesh*
IP1.3	False Color Suppression in Demosaiced Color Images *Jayanta Mukherje, Manfred K. Lan and S.K.Mitra*

IP1.4	Algorithms and Hardware Implementation of Real Time Automatic Gain Control Feature for Thermal Imager *Himanshu Singh, Ajay Kumar and S. S. Negi*
IP1.5	Content Based Retrieval of Emotions in Face Images *J. Nileema, Priti Chandra, C. Bhagvati, Arun K. Pujari and B. L. Deekshatulu*
IP1.6	Multillevel Approach for Color Image Segmentation *Kanchan Deshmukh, Abhijeet Nandedkar, Yeshwant Joshi and Ganesh Shinde*
IP1.7	Diagnostic Analysis Using Textural Features of the Lachrymal Fluid Crystals Images *N.Yu. Ilyasova, A.V. Kupriyanov, A.M. Malapheev and A.G. Khramov*
IP1.8	Contrast Enhancement of Electron Magnetic Resonance Images Using Linear and Non Linear Unsharp Masking Techniques *P. Alli, Murali C. Krishna and R. Murugesan*
IP1.9	Evaluation of Algebraic Iterative Algorithms for Reconstruction of Electron Magnetic Resonance Images *S. Sivakumar, Murali C. Krishna and R. Murugesan*
IP1.10	A New Algorithm for Image Reconstruction for Positron Emission Tomography *Partha P. Mondal and K. Rajan*
IP1.11	Wavelet Packet Based Digital Image Watermarking *A. Adhipathi Reddy and B. N. Chatterji*
IP1.12	Unsupervised Segmentation of Texture Images Using A Combination of Gabor and Wavelet Features *Shivani G. Rao, Manika Puri and Sukhendu Das*
IP1.13	Watermarking Scheme for Blind Quality Assessment in Multimedia Mobile Communication Services *Santi P. Maity, Malay K. Kundu and Prasanta K. Nandi*
IP1.14	Facial Model Improvement Using 3D Texture Mapping Feedback *Yongjie Liu, Anup Basu and Jong-Seong Kim*
IP1.15	Region of Interest Based Coding of 2-D and 3-D Magnetic Resonance Images *R. Srikanth and A. G. Ramakrishnan*
IP1.16	Fractal Based Image Segmentation *Tushar Londhe, Asim Banerjee and Suman K. Mitra*
IP1.17	Content Based Image Retrieval with Multiresolution Salient Points *Minakshi Banerjee and Malay. K. Kundu*
IP1.18	Image Retrieval Using Relevance Feedback Based on Mann-Whitney Test *Sanjoy K. Saha, Amit K. Das and Bhabatosh Chanda*

Plenary Session

Plenary IV	Chair:
Friday, December 17, 2004	**15:30—16:10**
P 4	The Space of Human Shapes *Brian Curless*, **University of Washington, USA**

Industry Session

Industry	Chair:
Friday, December 17, 2004	**16:10—17:50**
IN 1	Adobe in the World of Imaging *Naveen Goel*, **Adobe Systems India**
IN 2	HPTC (High Performance Computing) Strategy *K Jayan*, **HP (India)**
IN 3	Real-time Vision at Siemens Corporate Research *Visvanathan Ramesh*, **Siemens Corporate**
IN 4	Embedded implementation of H.264 video decoder *Arun K. Pradhan and Tanushyam Chattopadhyay,* **Embedded Software Solutions Group, TCS**

Poster Session

Image Processing-II	Chair:
Saturday, December 18, 2004	**9:30—11:00**
IP2.1	A Very Efficient Table Detection System from Document Images *S. Mandal, S. P. Chowdhury, A. K. Das and Bhabatosh Chanda*
IP2.2	Similarity Retrieval of Symbolic Images with Multiple Instances of Iconic Objects: A Novel Approach *P. Punitha and D. S. Guru*
IP2.3	Recognition of Unconstrained Malayalam Handwritten Numeral *U. Pal, S. Kundu, Y. Ali, H. Islam and N. Tripathy*
IP2.4	Video Summarization: A Machine Learning Based Approach *Koustav Bhattacharya, Santanu Chaudhury and Jayanta Basak*
IP2.5	A Color-texture Histogram from the HSV Color Space for Video Shot Detection. *A. Vadivel, M. Mohan, Shamik Sural and A. K. Majumdar*
IP2.6	Some New Similarity Measures for Histograms *Dietrich Van der Weken, Mike Nachtegael and Etienne Kerre*
IP2.7	Improved Cut-Based Foreground Identification *Sharat Chandran, Satwik Hebbar, Vishal Mamania and Abhineet Sawa*
IP2.8	A Perceptual No-Reference Blockiness Metric for JPEG Images *R. Venkatesh Babu, Ajit S. Bopardikar and Andrew Perkis*
IP2.9	Face Recognition Using Legendre Moments *S. Annadurai and A. Saradha*
IP2.10	Recognition of Non-symmetric Faces Using Princlipal Component Analysis *N. Krishnan, G. Raja Jothi and G. Lakhs Aaron*
IP2.11	G-Images: Towards Multilevel Unsupervised Image Segmentation *Harbir Singh and Reyer Zwiggelaar*
IP2.12	Cursive Word Recognition Using a Novel Feature Extraction Method and a Neural Network *José Ruiz-Pinales and René Jaime-Rivas*

IP2.13	Lung Disease Detection Using Frequency Spectrum Analysis *Ching Ming Jimmy Wang, Mamatha Rudrapatna and Arcot Sowmya*
IP2.14	A Comparative Study on Discrete Orthonormal Chebyshev Moments and Legendre Moments for Representation of Printed Characters *Sarat Saharia, Prabin K. Bora and Dilip K. Saikia*
IP2.15	Emotion Recognition from Facial Expressions: A Target Oriented Approach Using Neural Network *Sreevatsan A N, Sathish Kumar K G, Rakeshsharma S and Mohd. Mansoor Roomi*
IP2.16	Local Correlation-based Fingerprint Matching *Karthik Nandakumar and Anil K. Jain*
IP2.17	CODE: An Adaptive Algorithm for Detecting Corners and Directions of Incident Edges *Partha Bhowmick and Bhargab B. Bhattacharya*
IP2.18	Transcoding of Document Images for Mobile Devices *Tabassum Yasmin, Santanu Chaudhury and Richa Jain*

Plenary Session

Plenary – V	Chair:
Saturday, December 18, 2004	**11:00—11:40**

P5	Digital Distance Geometry and Its Applications to Image Analysis *Partha P. Das,* **Interra Systems, India**

Oral Session

Image Segmentation	Chair:
Saturday, December 18, 2004	**11:40—13:00**

IS1	Information Content Driven Unsupervised Top-Down Image Segmentation *Emanuel Diamant*
IS2	An Unsupervised Boosting Learning Algorithm for Finite Mixture Model-based Image Segmentation *Yu lin-Sen and Zhang Tian-Wen*
IS3	A Novel Merging Method in Watershed Segmentation *Maria Frucci*
IS4	Quantitative Comparison of Automatic ICV Segmentation Methods Using 3T MR Images *Suja S. and Rakesh Mullick*

Poster Session

Image Processing – III	Chair:
Saturday, December 18, 2004	**14:00—15:30**

IP3.1	Sports Video Characterization Using Scene Dynamics *R. S. Jadon, Santanu Chaudhury and K. K. Biswas*
IP3.2	Line Segmentation and Analysis with Special Interest to the Duct of a Line *Carola Schonlieb and Kung Chieh Wang*
IP3.3	CONFERM: Connectivity Features with Randomized Masks and Their Applications to Image Indexing *Arindam Biswas, Partha Bhowmick and Bhargab B.Bhattacharya*
IP3.4	A Modified BTC Using Quincunx Subsampling and Pattern Fitting for Very Low bpp *Bibhas Chandra Dhara and Bhabatosh Chanda*
IP3.5	Multi Biometric System for Verification with Minimum Training Data *Mayank Vatsa, Richa Singh and P. Gupta*
IP3.6	Bitplane Based Area Morphology for CBIR *K. Kiran Kumar, Chakravarthy Bhagvati, A. K. Pujari and B. L. Deekshatulu*
IP3.7	A System for Joining and Recognition of Broken Bangla Numerals for Indian Postal Automation *K. Roy, U. Pal and B. B. Chaudhuri*
IP3.8	Recognition of Modification-based Scripts Using Direction Tensors *Lalith Premaratne, Yaregal Assabie and Josef Bigun*
IP3.9	Correcting Colours for Aided Recomposition of Fragments *G. Carlomagno, F. Renna, N. Ancona, N. Mosca, G. Attolico and A. Distante*
IP3.10	A Robust Nonparametric Estimation Framework for Implicit Image Models *Himanshu Arora, Maneesh Singh and Narendra Ahuja*
IP3.11	Robust Fingerprint Classification Using An Eigen Block Directional Approach *P Madhusoodhanan and Sumantra Dutta Roy*
IP3.12	Minutiae Verification in Fingerprint Images Using Steerable Wedge Filters *Sharat Chikkerur, Venu Govindaraju, Sharath Pankanti and Ruud Bolle*
IP3.13	Recognition of Binary Image Represented by A String of Numbers *Kallol Bhattacharya, Krishnendu Goswami and Dipankar Biswas*
IP3.14	Searching in Document Images *C. V. Jawahar, Million Meshesha and A. Balasubramanian*
IP3.15	A Study on the Application of Color Transfer Technique for Video Compression *K. Madhu Sudhana Rao and Suman K. Mitra*
IP3.16	Hidden Markov Model Based Structuring of Cricket Video Sequences Using Motion and Color Features *M. H. Kolekar and S. Sengupta*
IP3.17	Key Video Object Plane Selection by MPEG-7 Visual Shape Descriptor for Summarization and Recognition of Hand Gestures *M. K. Bhuyan, D. Ghosh and P. K. Bora*

IP3.18	An Architecture for Real Time Face Recognition Using WMPCA *A. Pavan Kumar, V. Kamakoti and Sukhendu Das*

Oral Session

Biometrics and Related Application	Chair:
Saturday, December 18, 2004	**15:30—17:30**

BR1	Fingerprint Classification Using Orientation Field Flow Curves *Sarat C. Dass and Anil K. Jain*
BR2	Multi-Cue Exemplar-Based Nonparametric Model for Gesture Recognition *Vinay D. Shet, V. Shiv Naga Prasad, Ahmed Elgammal, Yaser Yacoob and Larry S. Davis*
BR3	Towards A Robust and Real-time Face Detection and Tracking Framework *Peihua Li and Kai Xie*
BR4	Robust Face Recognition by Fusion *K. Srinivasa Rao, Lilesh S. Ghadi, Y. Anoop Kumar and A. N. Rajagopalan*
BR5	Dynamic Hand Gesture Recognition Using Predictive Eigen Tracker *Kaustubh S. Patwardhan and Sumantra Dutta Roy*
BR6	Fast and Robust Projective Matching for Fingerprints Using Geometric Hashing *Rintu Boro and Sumantra Dutta Roy*

Valedictory Session	Chair:
Saturday, December 18, 2004	**17:30—18:30**
IUPRAI GB Meeting	

CALCUTTA

On August 24, 1690, an Englishman on his travels, took a "mid-day halt". And since then, from the stopover of Job Charnock "grew a city.......... so it spread..............chance directed, chance erected.........".

Bustling with trade, shimmering with colours and jewels, it was till 1911 the capital of British India. The Indian renaissance started here and India's struggle for freedom was born here. Even today, Calcutta retains its splendour and glory. It is the nerve centre of cultural ferment and the home of many modern movements in art, cinema and theatre in India.

Calcutta, with its ten million people, is a fascinating city vibrating with life.

Calcutta is indescribable. Life never stops in Calcutta. At any time of the year there is something going on - a festival, a wedding, a match, a demonstration, a concert or a party. One has to live it, breathe it, love it and eventually when it is time to go, leave behind a bit of one's heart.

AIR CONNECTIONS

Calcutta is internationally connected by air directly to New York, London, Paris, Frankfurt, Rome, Moscow, Dubai, Bangkok, Singapore, Tokyo and others.

Within India it is linked with Delhi, Mumbai, Chennai, Bangalore, Guwahati, Dibrugarh, Nagpur, Bhubaneswar, Hyderabad and other important cities.

PLACES TO VISIT

Academy of Fine Arts

Established in 1933, the Academy is a place where the city's culturally conscious intellectuals converge. Its art galleries feature exhibitions by contemporary artists throughout the year. The Rabindra Gallery contains personal belongings, manuscripts and paintings by Tagore. Situated near Victoria Memorial, its galleries are open daily from 3 pm to 8 pm (except the Rabindra Gallery which remain open from 12:00 noon to 6 pm daily, closed on Mondays).

Belur Math

Founded by Swami Vivekananda, the world famous yogi and disciple of Sri Ramakrishna Paramhansa, it is the Headquarters of the Ramakrishna Mission. This International tourist attraction is located on the banks of the river Hooghly near Belur, 6.4 kms. from Howrah Station. Its sprawling prayer hall with a statue of Ramakrishna is remarkable. Connected by train and bus.

Birla Industrial & Technological Museum

Established in 1959, it is located at 19A Gurusaday Road. It features permanent exhibition on scientific and technological progress. Has workshop which designs and produces much of its exhibits. Entry by ticket, Monday closed.

Birla Planetarium

One of the largest in Asia, it is located at 96 Jawaharlal Nehru Road, Daily programmes in English, Bengali and Hindi from 12 noon to 7 pm. It can accommodate 500 persons. Entry by ticket, Monday closed.

Botanical Garden

The largest and oldest of its kind in India, it was laid out in 1787. It covers an area of 109.27 ha and is famous for the over 250 years old Great Banyan tree which covers 382 m in its circumference, with over 600 aerial roots. There are more than 30,000 varieties of trees and plants. Situated about 9 km from Calcutta, across the Hooghly river, it is a lovely picnic spot, best reached by a ferry across the Hooghly river from Metiabruz. Open from 7:00 am to 5:00 pm. Entry by ticket.

Dakshineswar

Built by Rani Rasmoni in the 19th century on the bank of the river Hooghly, in the northern suberb of Calcutta. It is here that Sri Ramakrishna Paramhansa, the renowned spiritual personality and the guru of Swami Vivekananda had worshipped the goddess Kali. A world famous place of pilgrimage.

Eden Gardens

A sprawling garden set up by the British in the early 20th century with a band stand and a beautiful pagoda. An attractive picnic spot on Strand Road. A stadium has been built adjacent to it for cricket test matches which can accommodate about 100,000 people.

Indian Museum

A National Museum housing rare antiques, armaments, armour, fossils, stones, paintings of Mughal India, regal dresses/uniforms, rare animal skeletons, mummies, etc. Entry by ticket. Situated on J L Nehru Road.

Kalighat Temple

Legend goes that the name of Calcutta, is derived from the famous Kali deity of this temple located at Kalighat in South Calcutta. A great attraction for Hindu pilgimage.

Metro Rail

The underground railway system is the main traffic artery of the city, running from Dum Dum in the North to Tollygunge in the South. Stations are placed at all major junctions along the length of the city.

National Library

Previously vice-Regal House, it is one of the largest libraries in Asia with a collection of rare books and manuscripts. Located opposite the Zoological Gardens, Alipore.

Nicco Park

An amusement park with a variety of enjoyable games and rides. Located at Salt Lake. Entry by ticket.

Saheed Minar

Previously known as Octerloney Monument, it resembles the Qutab Minar of Delhi. Located near Esplanade on the Maidan and seat of many memorable political meetings.

St. Paul's Cathedral

The Anglican Cathedral of Calcutta built in 1847, adjacent to the Birla Planetarium. Its tower is 65 m high and is famous for the serene service conducted on Christmas Eve.

Science City

One of the few such facilities in the World, the Science City on the Eastern Metropolitan Bypass has a Convention Center and Science Theme Park. Here, hitech combines with impressive visuals to bring science closer to people. Entry by ticket.

Victoria Memorial

Built in memory of Queen Victoria, between 1906 and 1921, imitating the Taj Mahal, topped with an angel, this memorial faces the Calcutta maidan. It houses paintings, manuscripts, and other objects of historic value in its Museum and Art Gallery. Two regular sound and light shows are held in the evening. Entry by ticket, Monday closed.

Zoological Garden

One of the biggest zoological gardens in India, it has a vast collection of animals, birds, snakes and reptiles. It also has a section for children. It remains a favourite picnic spot during winter and attracts a large number of emigrant birds. Directly across the main zoo is an aquarium, with a variety of aquatic life from around the world. Entry by ticket.

ESSENTIAL INFORMATION

Hospitals Nursing Homes

Advanced Medicare & Research Institute Ltd. : 440-4102/9753/54
Assembly of god Hospital & Research Centre : 229-4853/4886
Belle Vue Clinic : Ambulance with medical facilities including oxygen, 24-hr doctor/nurse available : 247-7473/6925/7920/7918/6921
B. M. Birla Heart Research Centre : 456-7900/7100/7705/7102-5
CMRI : 456-7700/02/03/04, Fax : 456-7880
Calcutta Medical College : 241-49012-4/3953/3177/2962
Kothari Medical Centre : 456-7051/7055/7059
Lansdown Nursing Home : ideal place with life saving equipment: 217-1001 to 04, Tel./Fax : 217-7860
Peerless Hospital : 462-0955/0766/6394/2394/2462
SSKM Hospital : 223-9692
Woodlands Nursing Home : 456-7079/7080

Ambulance & Other Medical Services

East West Medical Complex : Ambulance Services : 476-2252/2280

Happy Calcuttans : Ambulance available with oxygen and emergency drugs : 440-0160
Life Aid : Ambulance available : 473-5807/417-1845
Lokenath Divine Society of India : 24-hour hours service : 479-3301
Nightangle Ambulance Service : 475-4169
Meera Seva Kendra : Ambulance, Oxyge, Medical care, nurse available : 411-9400/0968/8316
Medicare Services : 247-6111 to 12, 247-6223
St. John Ambulance Association : 24-hour ambulance with oxygen Sealdah : 350-4199

Trains / Flights

Howrah Station (inquiry) : 660-2581/3542/7412
Fairlie Place (inquiry) : 220-4025
Reservation : Manual : 135 (05 lines) Computerised : 136 (Eng) 137 (Hindi) 138 (Bengali)
Howrah (New Complex) : 660-2217
Train information : Central Enquiry Manual : 1310, Recorded : 1331
Sealdah Station (inquiry) : 350-3537/3535
Public Information Centres/Sealdah : 3503536
Air India : 282-2356-59/282-1187 Airport : 511-9031
Indian Airlines : 236-4433 (24 hours)/236-0810/0730 Reservations : 141, 236-6869 (1900 to 0900 hrs)
Royal Brunei Airlines : 229-7112/7105/9577/2014 Airport : 511-8685, 511-8787 extn. : 4309
Sahara India Airlines : 282-7685 (City Office) Airport : 511-8357/8442
Singaport Airlines : Reservations/Ticketing : 280-9898/8882/8883, Airport : 511-9179/8978
British Airways: 288-3451/32/53/54, 288-9161/62 (City Office)
Airport: 511-8262/8424
Bangladesh Biman: 229-2844 Airport: 511-8787 extn.: 4207
Druk Air: 280-5376, 240-2419, Airport: 511-9894/9895 Telecheck in 511-8836