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(54) Title of the invention : SENSOR BASED HAND RECOGNITION SYSTEM FOR ASSISTING PEOPLE WITH HEARING IMPAIRMENT

(51) International classification :G06F0003010000, G06K0009000000, G06N0003040000, G06K0009620000, G06N0003080000 (86) International Application No :PCT// Filing Date :01/01/1900 (87) International Publication No : NA (61) Patent of Addition to Application Number :NA Filing Date :NA (62) Divisional to Application Number :NA Filing Date :NA	(71)**Name of Applicant :** 1)**Dr.S.Balamurugan** Address of Applicant :No.21, Kalloori Nagar, Peelamedu, Coimbatore-641004, Tamilnadu, India ----------- ----------- 2)**DR. S. NITHYA DEVI** 3)**B.M.RAJESH** 4)**SILAMBARASAN S** 5)**DR. S. ANGELIN SOPHY** 6)**SHOWKAT AHMAD DAR** 7)**DR. M. SIVASANKARI** 8)**DR.R.SARASWATHI** 9)**V. BHARATHI** 10)**K.JANE NITHYA** 11)**DR.S.VENGATESH KUMAR** 12)**A.IMMACULATE** **Name of Applicant : NA** **Address of Applicant : NA** (72)**Name of Inventor :** 1)**Dr.S.Balamurugan** Address of Applicant :No.21, Kalloori Nagar, Peelamedu, Coimbatore-641004, Tamilnadu, India ----------- ----------- 2)**DR. S. NITHYA DEVI** Address of Applicant :Assistant Professor, Department of Computer science,Vivekanandha College of Arts and Sciences for Women(Autonomous), Elayampalayam, Tiruchengode - TK, Namakkal District, Tamilnadu - 637 205, INDIA ----------- ----------- 3)**B.M.RAJESH** Address of Applicant :Assistant Professor, Dept. of Information Technology,Dr. N.G.P Arts and Science College,Kalapatti. Kalapatti Post, Coimbatore-641035, Tamilnadu, India ----------- ----------- 4)**SILAMBARASAN S** Address of Applicant :Assistant Professor, Department Of Computer Science, Don Bosco College, Dharmapuri 636 809, Tamilnadu, India. ----------- ----------- 5)**DR. S. ANGELIN SOPHY** Address of Applicant :Assistant Professor, Department of Computer Science , Pachamuthu College of Arts and Science for Women, Dharmapuri-636701, Tamilnadu, India. ----------- ----------- 6)**SHOWKAT AHMAD DAR** Address of Applicant :Research Scholar, Department of Computer Science and Engineering , Annamalai University, Annamalainagar , Chidambaram -608002, Tamilnadu, India ----------- ----------- 7)**DR. M. SIVASANKARI** Address of Applicant :Assistant Professor, Don Bosco College of Arts and Science,KEELA ERAL - 628 908, Thoothukudi Dist., Tamilnadu, India ----------- ----------- 8)**DR.R.SARASWATHI** Address of Applicant :Associate Professor ,Department of CSE, Srinivasa Institute of Technology and Management studies Murukambattu post, Chittoor, Andhrapradesh - 517 127, India ----------- ----------- 9)**V. BHARATHI** Address of Applicant :Assistant Professor,PSGR Krishnammal College for Women, Peelamedu, Coimbatore - 641 004, Tamilnadu, India ----------- ----------- 10)**K.JANE NITHYA** Address of Applicant :Assistant Professor, Department Of Computer Science, Ethiraj College for Women, Chennai-600008, Tamilnadu, India ----------- ----------- 11)**DR.S.VENGATESH KUMAR** Address of Applicant :Associate Professor, Dr SNS Rajalakshmi College of Arts And Science , Sarvanapatti Road, Coimbatore 641049, Tamilnadu, India ----------- ----------- 12)**A.IMMACULATE** Address of Applicant :Associate Professor,Dept of computer applications, Kongunadu Arts and Science College (Autonomous), Coimbatore-641029, Tamilnadu, India ----------- -----------

(57) Abstract :
Recent days have seen a steep rise in the research on Human Computer Interaction, specifically on Hand Gesture Based Recognition Systems. Proposed is a Sensor Based Hand Recognition System for assisting people with hearing impairment. Initial detection of hand is carried out employing depth map and colour markers for accurate recognition of shape of static hands. To measure similarity and differences of hand shapes, earther mover distance is used. The system includes three phases such as detecting and tracking the hand, image segmentation and feature extraction. Static Hand Gestures are identified and learnt using normalization and classification of instances. The hand movement path is sampled and labelled followed by translation and classification for dynamic hand gesture recognition. The hand movements thus captured are classified and sequenced according to gesture using Convolution Neural Networks and the commands from trained model are decoded to text and projected to people with hearing impairment.

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