**6.Real time Hand Gesture Recognition using different algorithms based on American Sign Language**

Sign Language Is The Primary Language Of People Who Are Deaf Or Hard Of Hearing. It Is A Complex But Complete Language Which Involves Movement Of Hands, Facial Expressions And Postures Of The Body. Researchers Are Working On Hand Gesture Recognition Using Visual Analysis. An Automated Vision Based American Sign Language (ASL) Recognition System Was Presented In. The Kinect Sensors Capture Pseudo-3D Images Which Can Easily Segment The Input Image And Track The Image In 3D Space. Three Techniques Were Explored: K Curvature, Convex Hull And Curvature Of Perimeter For Fingertip Detection.

The System Is Designed To Visually Recognize All Static Gestures Of American Sign Language (ASL) With Bare Hand. Different Users Have Different Hand Shapes And Skin Colors, Making It More Difficult For The System To Recognize A Gesture. The System Combines Five Feature Extraction Algorithms For User Independent And Robust Hand Gesture Recognition. An Image Can Be Identified And Classified By Some Points Of Interest Or Set Of Values Called The Features. In This Paper, Five Distinct Features Such As Fingertip Finder, Eccentricity, Elongatedness, Rotation And Pixel Segmentation Are Used For Feature Extraction.

Fifty Sample Images Of Each Sign From Different Individuals Are Taken To Train, Test And Validate The ANN. K Curvature Algorithm Finds An Angle Between Two Points. If Angle At Point P Is Greater Than Threshold Value, Then P Is Considered A Fingertip. This Combined Algorithm Named "K Convex Hull" Calculates Fingertip More Accurately. It Also Reduces The Processing Time As Only The Common Points Of The Hand Contour Are Listed As Boundary Points.

An Android Application Called Droidcam Is Used For Realtime Setup. It Allows The Mobile Camera To Take The Input Images Of Hand Gestures With Better Resolution. The Outcome Shows That Individual Algorithms Give The Neural Network Testing Accuracy Of 85.9%, 51.3% And 99.2% Respectively. While Combining All Features, Better Accuracy Of 99.5% Is Achieved. A Comparative Study Among Different Scholarly Approaches And Our Proposed System Is Shown In Table III. The ANN Testing Result Of The Proposed System Shows That It Is Significantly More Accurate Than Other Approaches.