**2.Real Time Bangladeshi Sign Language Detection Using Faster R-CNN**

The Main Contribution Of The Sign Language Detection Technique Is To Act As A Digital Interpreter Between The Deaf And The Hearing People. Previous Works Were Solely Based On Old-Fashioned Image Pre-Processing Methods Such As – Morphological Operations, Color-Based Foreground Segmentation Etc. In Our Work, We Explore The Area Of Sign Language Detection And Develop A Technique To Detect Signs In Real Time By Exploiting The Faster Region-Based Convolutional Network Method. Bangladeshi Sign Language (Bdsl) Is One Of The Many Sign Languages Being Investigated By Researchers In The U.S. Such As American Sign Language, Chinese Sign Language And Parisian Sign Language. In This Paper, We Investigate Bdsl Recognition And Develop A System Using Faster R-CNN.

We Generated A Dataset Of Images Of Bangladeshi Signs With Random Backgrounds And Lighting Conditions To Train Our System. Our Result Habit Satisfactory Outcome In Identifying The Gesture Area And Recognizing Bdsl In Real Time.

In This Section, We Review Some Of The Previous Works On The Domain Of Bangladeshi Sign Language (BDSL) Detection As Well As A Brief Review Of The Faster R-CNN Which Is Used In Our Proposed Methodology. We Also Look At How Researchers Have Used Virtual Reality To Capture Hand Gestures And Implemented CNN For Detecting The Signs. Most Of The Existing Datasets Used In Bdsl Detection Models Do Not Have Variation In Background And Different Lighting. A Key Factor That Plays An Important Role In Faster R-CNN Is The Anchor .

Anchors Are Fixed Sized Bounding Box. An Input Image Is Divided Into Several Anchors In CNN Feature Map. In Proposed Model, There Are 4 Different Scale (0.25, 0.5, 1.0, 2). In This Section, We Present Our Bdslim Set (Bangladeshi Sign Language Image Dataset) Dataset Followed By The Proposed Technique For Training A Neural Network. Roil Pooling Reduce The Feature Maps Into The Same Size.

It Eventually Splits The Input Image Into A Fixed Number Of Roughly Equal Regions Then Applies Max-Pooling To Each Region. The Output Of Roil Pooling Is Always Fixed Regardless The Size Of Input. For Each Letter About 100 Sign Images Of 10 People Of Different Ages And Genders Have Been Captured With Various Backgrounds. Our Technique Is Implemented In Tensorflow-V1.5 And Cuda V9.0. Training Was Completed With Loss Of 0.07538 And Accuracy.

There Was About 98.2 Percent In Average. Each Step Of Training Reports The Loss. It Started High And Gets Lower And Lower As Training Progresses. In This Paper, We Have Developed A System That Would Recognize Bangla Sign Letters In Real Time. Images Of Different Bdsl Signs From Our Bdslim Set Dataset Were Trained By Faster. R-CNN Based Model To Solve The Problem Of Sign Language. We Obtained Average Accuracy Rate Of 98.2 Percent And Recognition Time Of 90.03 Milliseconds.