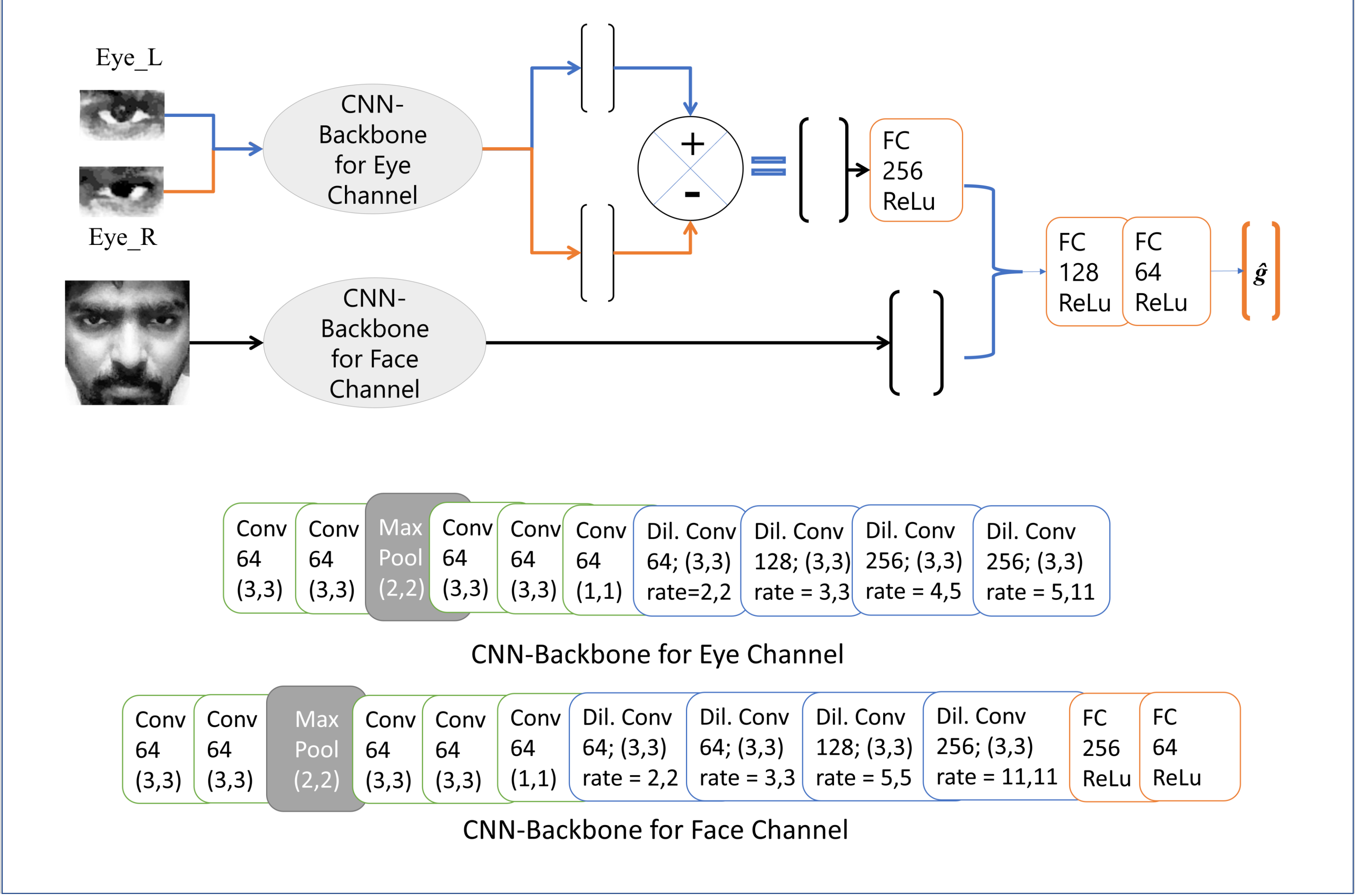


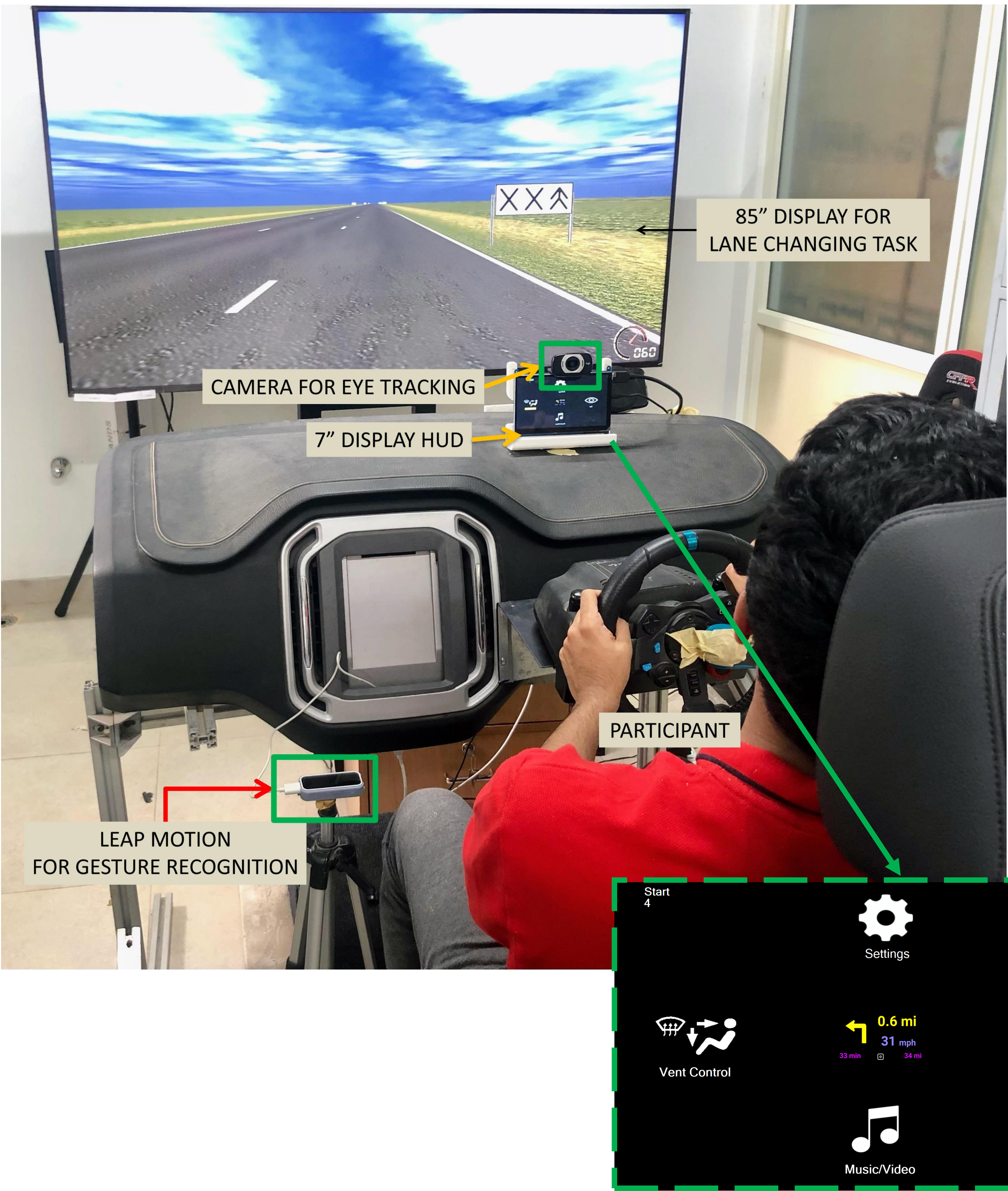
## INTRODUCTION

- Automotive Head-Up Displays (HUD) offer a promising alternative to the existing Head Down Displays (HDD) inside the car
- Existing HUDs do not provide interactivity restricting their potential to mere information visualization
- We proposed a novel webcam-based gaze tracking system to interact with the icons on HUD.

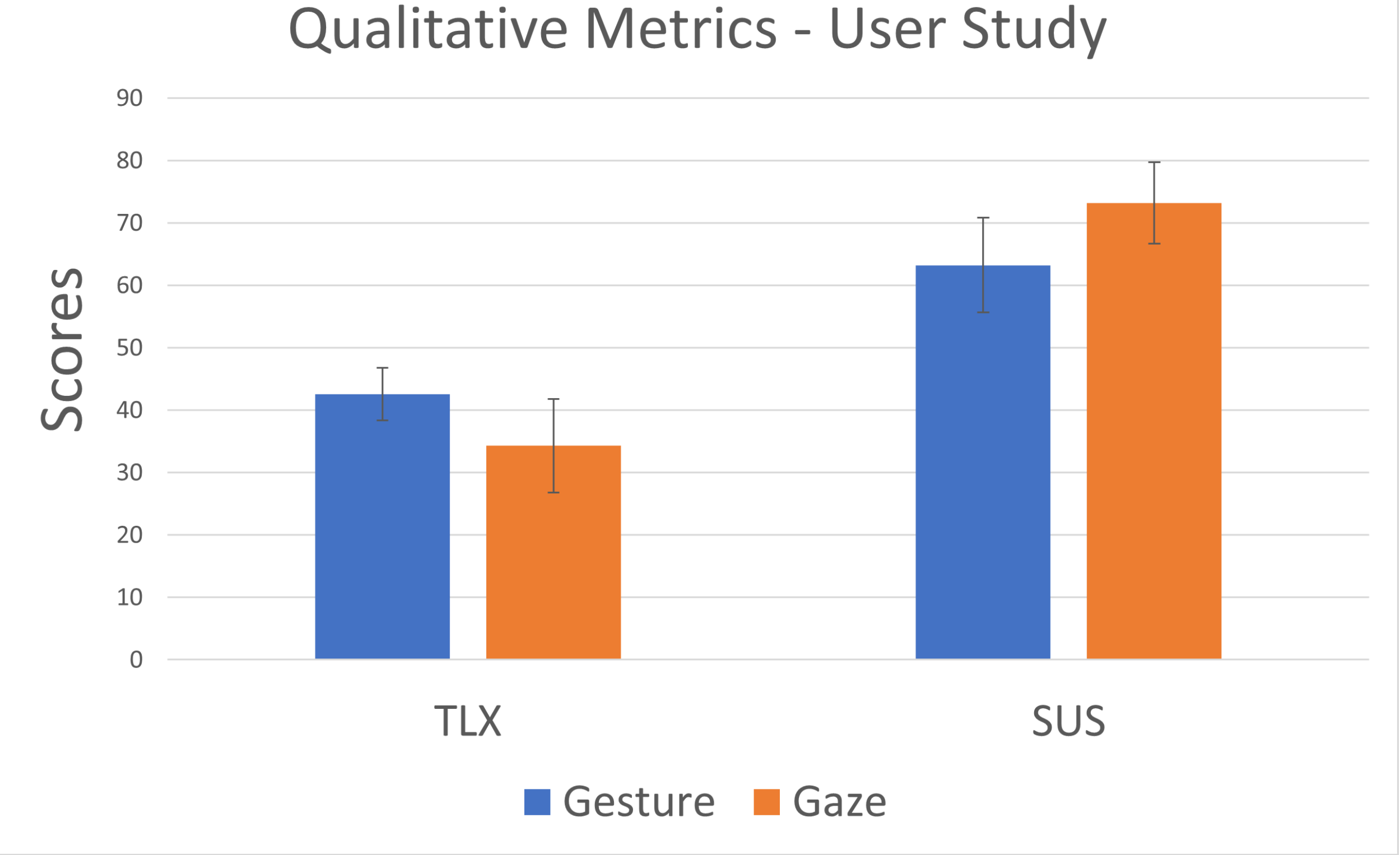
## Modified I2D-Net for Gaze Estimation



## Illustration of the Experimental Setup



## RESULTS



## QUALITATIVE METRIC

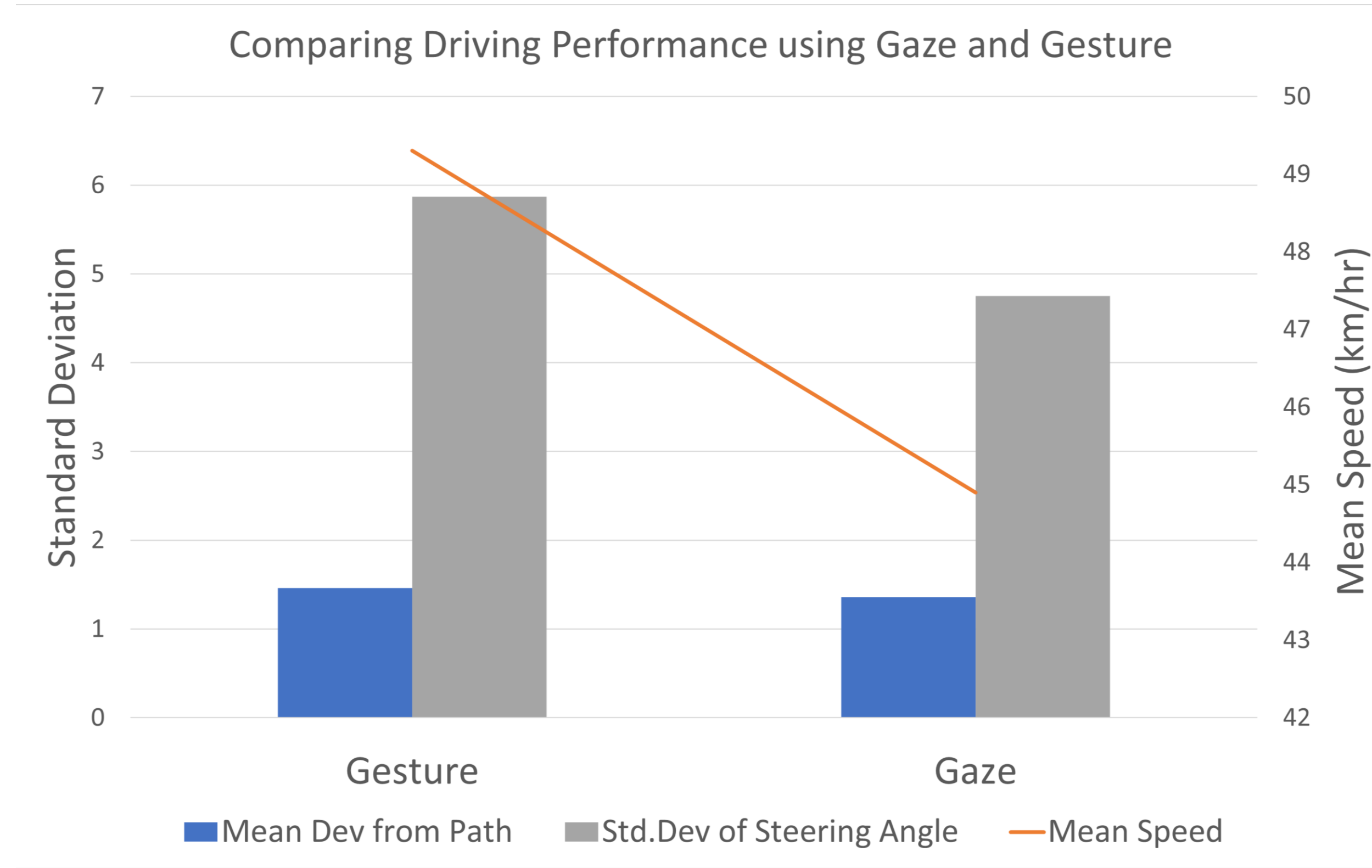
- Significantly higher preference towards proposed Gaze-controlled interface (73.2) than Gesture (63.2)
- Participants perceived significantly lower cognitive load while using proposed Gaze-controlled interface (34.3) than the Gesture interface (42.6).

## SELECTION METRICS

- Observed poor correct gesture detection rate by the commercial device (16.3%)
- High rate of successful selections (91%) and few missed clicks by the proposed interface
- No significant difference between two interfaces in terms of Mean Selection Time

## MODEL METRICS

- The proposed architecture achieved a parameter reduction by 40% (~52M vs ~87M parameters).
- Proposed Model adapts better to 3-point calibration for improving the gaze accuracy compared to other SOTA models having 9 or more points for calibration



## CONCLUSION

- The proposed gaze-controlled interface proved to be superior to gesture controlled interface in terms of usability and perceived cognitive load.
- Proposed gaze-controlled interface is more efficient toward person-specific calibration compared to existing appearance-based gaze estimation systems.