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REDUCING VISUAL DEMAND FOR GESTURAL -TEXT INPUT ON TOUCHSCREEN DEVICES-

Reducing visual attention levels when entering texts as an input is critical in increasing text entry speeds. Method developed by researhers is uniqıe in an aspect that users don't receive results of the recognized text until the end of a phrase. This approach leads to a less continious feedback to keep track of the text typed, which in turn reduces visual attention levels. This method is based on the frame model of visual attention and utilizes automatic error correction algorithm.

Developed model makes use of frame model of visual attention. In this model there are four different frames each of which requires distinct visual attention level, these four frames are respectively point frame, target frame, surface frame, and environment frame. Point frame is at the top of the hierarchy which requires highest degree of visual attention. Interactions in the point frame necessitate more intensified focus in terms of visual attention. Target frame comes after the point frame in the hierarchy and it involves choosing larger components such as buttons, navbars, icons which are more apparent compared to point frame selections such as pixels. Surface frame comes in the third level in the hierarchy and it encompasses as flicks, taps, and pinches which require minimal visual attention. Last level in the hierarchy is environment frame, environment frame comprises the user, related device, and the environment that they belong to. Visual attention is in between user and its circumference rather user and device. Thus, environment frame leads to lowest level of viusal attention requirement. The algorithm takes an input as a stream of characters unrecognized character are marked with "#" symbol, at the end of input phrase is checked within a dictionary. If it is found in dictionary it is left as it is, otherwise algorithm tries to correct it by computing the minimum string distance (MSD) between each word in dictionary and malformed word located in the input . After that, algorithm creates a seperate list of words which satisfy minimum string distance 1,2, and 3 and orders each list by decreasing frequency. Subsequently these lists are concatenated and all word having same size are removed an put at the beginning of a list. Word at the beginning is replaced with the word for correction.

In conclusion, text entry speed up doesn't come for free and errors in the corrected text and transcribed text increases as the phrase number increases, but it still yields promising results for short phrases and needs improvement for longer phrases to balance errors and text entry speed up.