Enhancing Accessible Pedestrian Signals: Using Tactile Maps

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Accessible Pedestrian Signals (APS) are vital for visually impaired individuals crossing the street. However, there are many different types of APS. Not having a universal design makes it harder not only for the visually impaired, but for those teaching them. In order to provide another way for all APS systems to be universal, I created a tactile map with a standard design that matches up with symbols frequently used on tactile maps for street crossings, as well as symbols for direction and to represent where they are in relation to the intersection. It is both cost and time efficient, and can be attached next to any APS. I tested three prototypes of the tactile map with 30 visually impaired individuals (10 per prototype) rating its effectiveness on scale 0-5. 29 participants rated the map as an improvement on APS alone. The ratings for the third prototype improved compared with the first. I used the Mann-Whitney U test and found that this improvement was significant at the 5% level. The prototypes were also scored by the proportion of participants recognizing different symbols on the map. I used the N-1 Chi-Square test to test for significant improvement from the first prototype to the third. The improvement in recognition of the symbol indicating where they were in relation to the intersection was not significant at the 5% level, but it was significant at the 10% level. The improvement in recognition of the symbol for “North” was significant at the 5% level.

Awards Won:
University of Arizona: Tuition Scholarship Award