

# Various Means to Assist with Safe and Quick Street Crossings for the Visually Impaired Pedestrians

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# Description

As is known by every O&M specialist, crossing of a street by the visually impaired pedestrians is the task that needs to use auditory, tactile or visual clues. The road crossing by the visually impaired will be divided into certain consecutive tasks and each of the tasks will require a certain clue to carry out. By using available clues, visually impaired pedestrians take timing to start and direction toward the goal and try to keep up correct walking direction during crossing. One of the reasons to make the task difficult for them is not only the lack of essential clue to walk safely and correctly but parallel processing of the information concerning present location, direction, changes in traffic condition and so forth for each instant of time. To make this dangerous task safer and easier, various assistive equipments and technologies have been developed. In my presentation, I would like to introduce the history and the present condition of the equipments which support visually impaired person's road crossing in Japan, and also would like to point out about problems still remaining.

# The consecutive subtasks carried out by VIP to cross a street

Detect a presence of intersection



Confirm the entrance of crosswalk



Direction taking



Predict the distance to walk



Take a timing to start



Avoid and/or correct veering



Confirm present location



Estimate remained time to cross

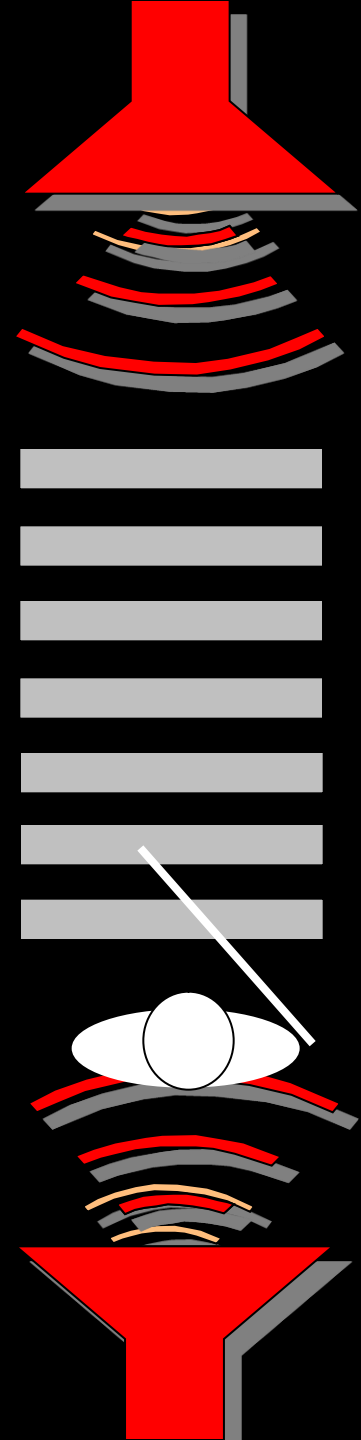
Confirm the end of crosswalk

# The effect on direction taking by three different types of Audible Pedestrian Signal

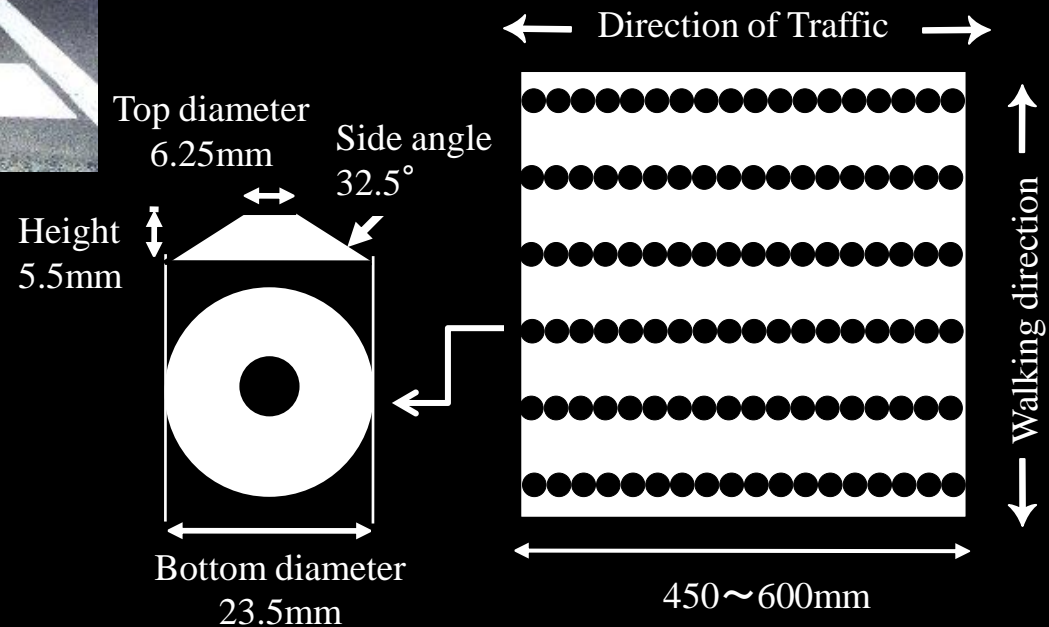
**A “Simultaneous” & “same sound”**

**B “Alternate” & “same sound”**

**C “Alternate” & “different sounds”**



# The effect of TWSI installed on the crosswalk to keep direction toward the goal

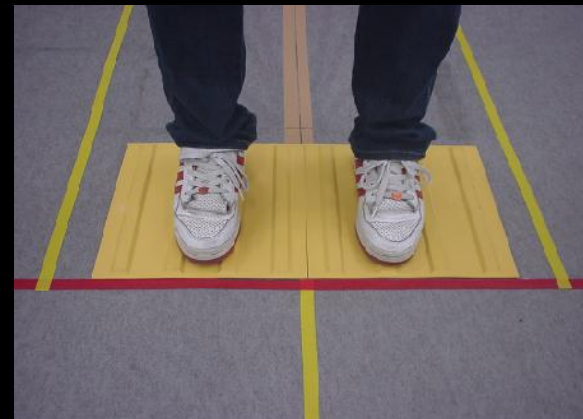


# The effect of bar-shaped TWSI installed in front of a crosswalk for direction taking

Perpendicular



Parallel



# Our research group

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