

Development of a Navigation Hat that Utilizes a Vibration System to Assist the Visually Impaired

Yupparaj Wittayalai School

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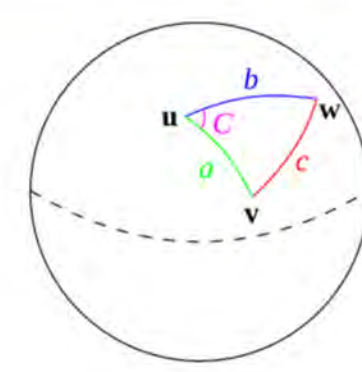
PROBLEM ?



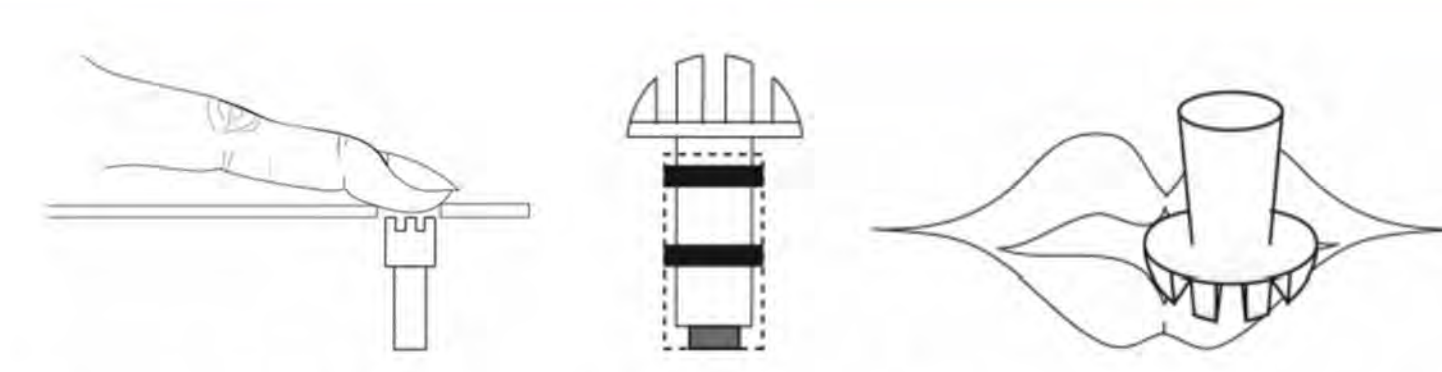
Finding Theories



Use Dijkstra's algorithm to find the shortest path



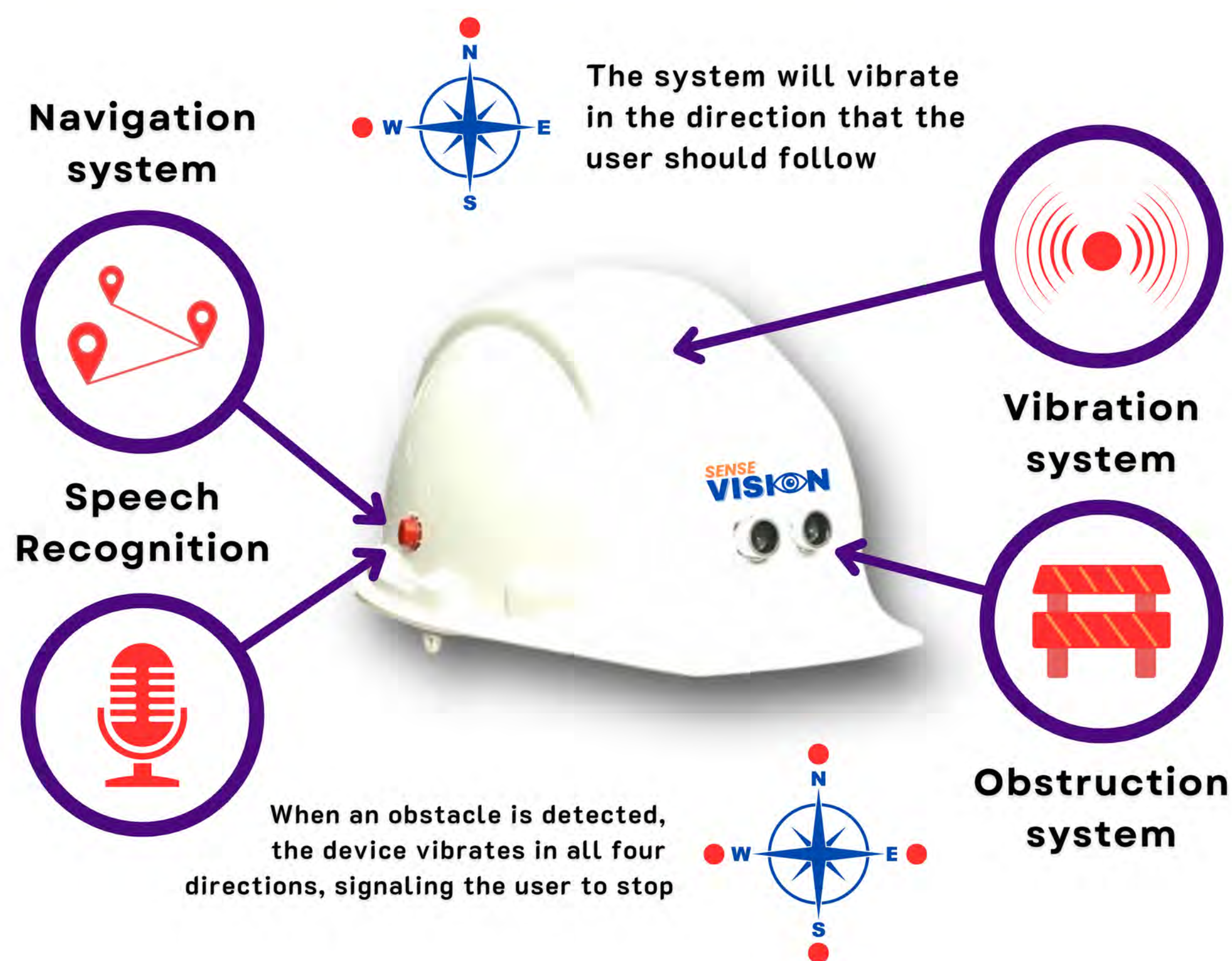
Use Haversine formula to increase accuracy



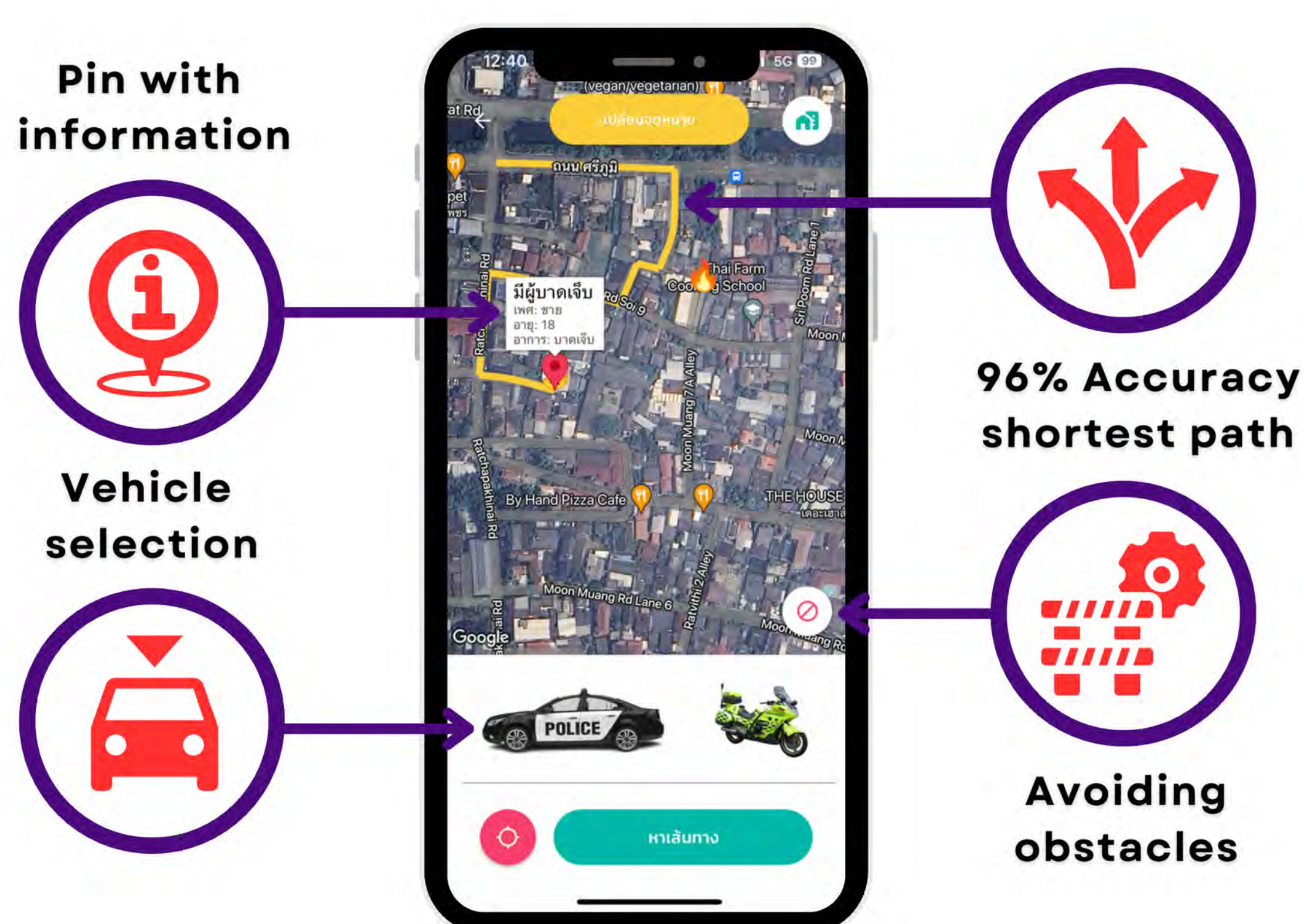
Research shows that visually impaired people have a heightened sense of touch.

PROJECT DESIGN

EQUIPMENT FOR PATIENT



APPLICATION FOR ASSISTANT



CONCLUSION

The results of the study on the **Development of a Navigation Hat that Utilizes a Vibration System to Assist the Visually Impaired** and **The Application for tracking the position of SenseVision** in the area around Building 10, Yupparaj Wittayalai School, Mueang District, Chiang Mai Province, by applying **Dijkstra's algorithm** and the **Haversine formula** are as follows

First Experiment

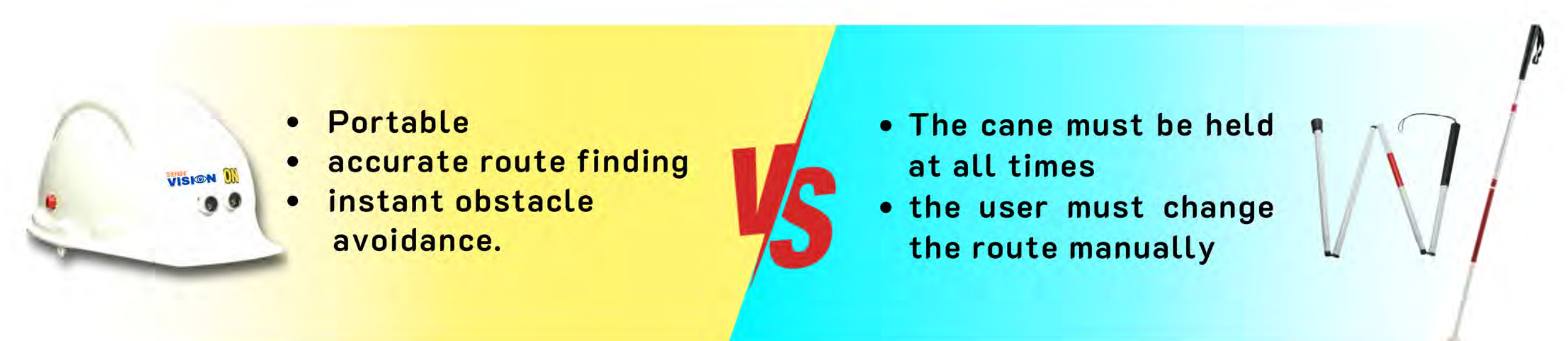
Random Pattern	> 300 cm	> 200 cm	> 100 cm
Entire Map	100%	90%	100%
1/2 Left	90%	90%	100%
1/2 Right	80%	100%	100%
1/4 Top Left	90%	90%	100%
1/4 Bottom Left	90%	100%	100%
1/4 Top Right	80%	100%	100%
1/4 Bottom Right	100%	100%	100%

Second Experiment

(Encounter an obstacle)

Random Pattern	> 300 cm	> 200 cm	> 100 cm
Entire Map	90%	90%	100%
1/2 Left	60%	90%	100%
1/2 Right	60%	70%	100%
1/4 Top Left	70%	90%	100%
1/4 Bottom Left	70%	90%	100%
1/4 Top Right	60%	100%	100%
1/4 Bottom Right	70%	90%	100%

From the results of the study, the device showed the highest accuracy at distances greater than 100 cm but not exceeding 200 cm, and the accuracy decreased as the distance to the destination increased



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