Objective:
Diabetics who are blind or visually impaired find it difficult to properly place their blood sample on a test strip, due to their lack of sight to guide the procedure. This leads to frustration, anger and/or stress as well as either increased costs or skipped tests due to wasted test strips. Our objective was to develop a simple to use, low cost, sanitary and effective device to aid with procurement of a blood sample on a test strip for a talking glucometer.

Method:
The device developed is comprised of two parts: a constrained space where the glucometer is placed from which the test strip extends and a hollow cylinder with a side slit aligned with the test strip. Haptic cues in the form of ridges guide the user from the lancing position on the top of the cylinder to the test strip via the rotation of their finger inside the cylindrical hollow. The device can be used with different fingers, as well as different locations on the finger. It is also dishwasher safe.

Result:
Pilot studies with blindfolded sighted subjects indicated that the device reliably guides the blood from the lancing site to the test strip. An IRB approved longitudinal study involving twenty-four users who are blind or visually impaired is underway. The study is recording subjective measures of frustration, anger and stress, as well as quantitative measures of number of test strips used and finger pricks performed.

Conclusion:
The device has shown promise to be a simple and low cost assistive device to address the frustration individuals who are blind or visually impaired feel while taking their daily blood glucose measurements.