For most people, we take our ability to see and hear for granted. These two senses allow us to communicate with others both verbally and visually. This includes everything from making small talk with a friend or family member to buying goods at a store.

Luckily for blind people, there exist a system to allow them to communicate already in place. Sign Language helps them overcome this disability by using their ability to see. Unfortunately, being both deaf and blind presents a whole new problem. Not only does both the blind-deaf person need to understand Sign Language but so does the person they wish to speak with.

This affects every part of a deaf-blind person's life. Not only can they not easily communicate and interact with family members and friends, but now they also cannot communicate with those who provide a service. A deaf person could potentially try to read a persons lips, however, blind-deaf person can obviously do no such thing and now rely on either someone to help them who understands a way of communicating with them.

In addition to this, they also cannot easily interface with existing computer technology such as smart phones. Without being able to see, using a touchscreen is out of the question which also means that on screen keyboards are useless. There are voice command options but without the verbal cues they provide as well as the textual confirmation they provide they would be cumbersome at best to use.

This is where the Sensory Glove comes in. Just like Sign Language utilizes a person's existing sense of sight, the Sensory Glove leverages a person's existing ability to feel. By using tactile feedback and existing smart phone technology, we can provide a new way for those who are blind-deaf to interact with those around them.

With new technology now available, it has become easier to help make peoples lives simpler. This is especially true with people who are disabled. For people who are blind, or blind and deaf, it is hard for them to be able text or email with privacy. If they are blind they would have to have their messages read aloud or if sending they would have to speak their message aloud. There are currently a few applications out there to try and solve this issue.

The company MotionSavvy has created a tablet case known as UNI. The case uses gesture recognition technology developed by Leap Motion to translate sign language into audible speech. The downside to this is that there are many different dialects of sign language and interpreting the different signs based of where you are in the world can be quite a challenge. This sounds like a great step in the right direction but it is $799 for the case and an additional $20/month for a subscription to sign builder is not very appealing.

The company HumanWare has also created a great piece of technology, a phone and braille keyboard that come blue-toothed together, this allows blind people to text and send messages with with privacy and help make their lives easier. This seems like a great product, but again the downside to this is the price. With two models to choose from, a model with 32 braille cells priced at $8,239, or a model with 16 braille cells priced at $6,379.

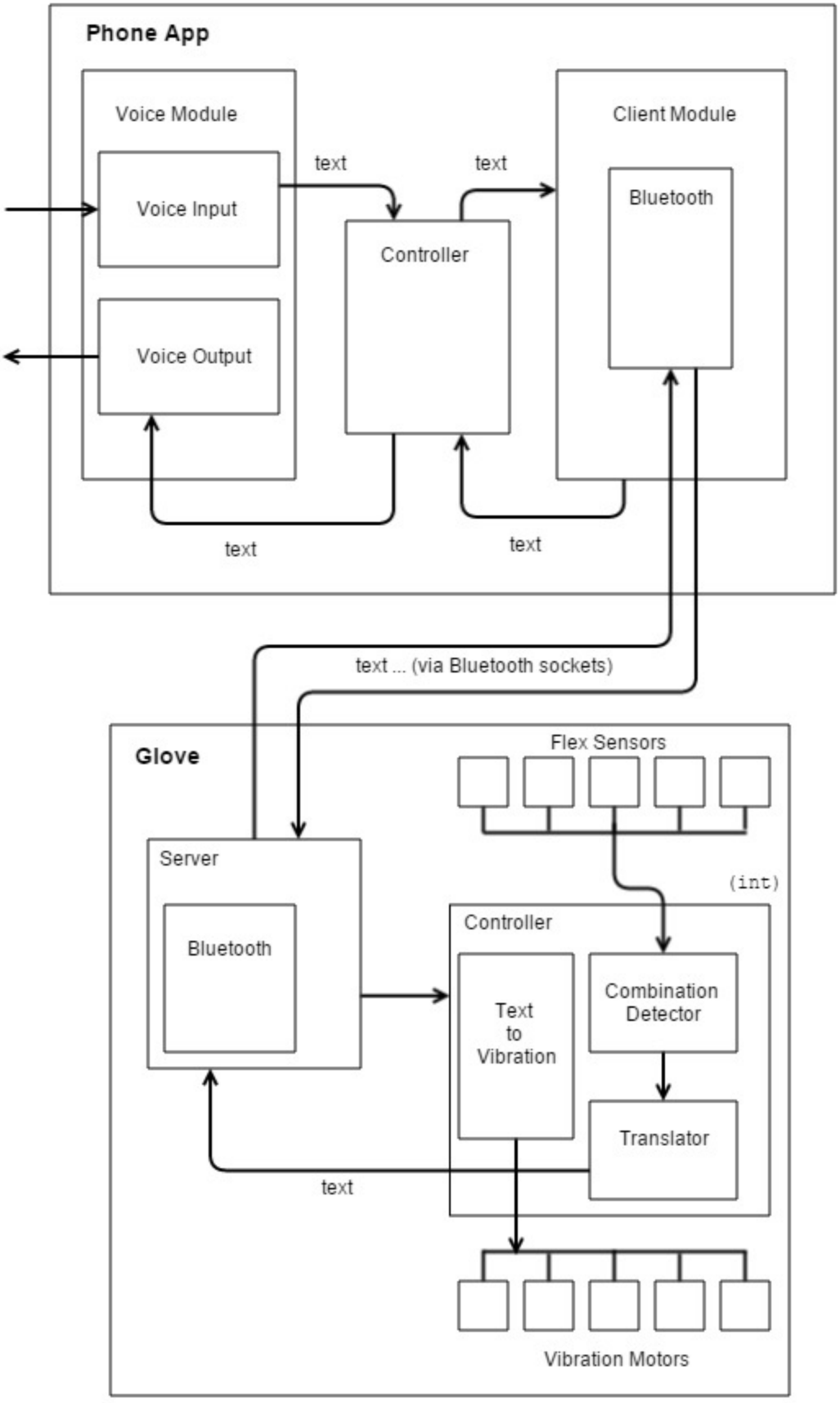
Although these companies have a made a step in the right direction and help to solve our issue, the costs of them are way too high. What we need to do is take these great ideas and create a cost effective way to solve these issues.

The users of the sensory glove will be able to send and receive text messages with privacy for users who are visually impaired. Our goal to make it possible to be able to send and receive text messages by bending your fingers with our glove on. In order to achieve this the user must be able to:

- Learn to count in binary
- Memorize a character map
- Posses fine motor skills
- Have access to a smartphone

The sensory glove goes on one hand and has five sensors on it, one for each finger. Each finger represents a bit in binary. This allows for the representation of up to 64 characters, each number representing one character. When all fingers are open this represents all zeros or nothing, then starting at one will be the letter ‘a’, two ‘b’, and so forth. This allows our users to send a message my just opening and closing their fingers. This way they don’t have to read their message aloud for others to hear if they do not want to.

In order to read a message with privacy each finger of the glove also has a small vibrator on it. When a user receives a message it reads it off character by character to the user by vibrating the fingers with associated mapped character. This allows for the user to receive a message without having to hear it aloud.


Phone App
Voice Module
Voice Input
Voice Output
text
Controller
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Client Module
Bluetooth
text
text
text ... (via Bluetooth sockets)
Glove
Flex Sensors
Server
Bluetooth
(int)
Controller
Text
to
Vibration
Combination
Detector
Translator
text
Vibration Motors

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