

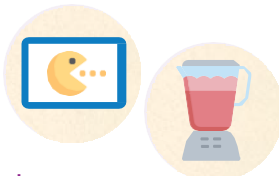


Turning Thoughts into Action with Brain Computer Interfaces



What are Brain Computer Interfaces (BCIs)?

Brain computer interfaces are **systems** that collect brain signals and turn them into **outputs** that control activities. These activities could be video games, a remote control car, a blender, and more!



Systems are a set of things working together.



Outputs are messages sent from the computer to other devices after the BCI has read and understood the child's brain signals.

How can a BCI help?

- All children have the **right to play**, but toys and games can be hard to access for kids with disabilities.
- BCI technology removes access barriers like the need for physical movement and speech.
- With this technology, kids with disabilities have **more opportunities** to play independently and show off their skills.

How do BCIs work?



This BCI uses a wireless **EEG** headset. The headset has 16 sensors.

EEG refers to electroencephalography, a way of monitoring the electrical activity of the brain.



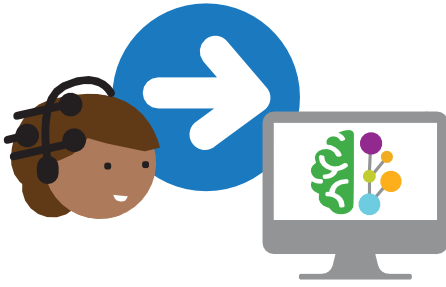
Each **sensor** has a felt pad that gets soaked in saltwater. This improves the system's ability to listen to electrical brain signals.

Sensors pick up electrical signals from the brain and send them to the computer.

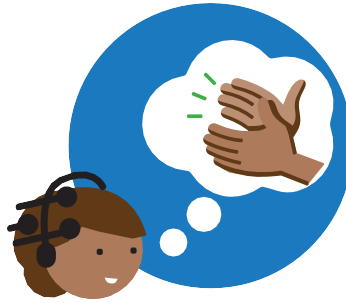
When the headset is put on, it might feel a bit cold and wet.



Next ...



The headset is connected to BCI software. It is then adjusted to make sure all of the sensors are touching the child's head.



The child trains the BCI to recognize a command thought, like thinking about clapping or going fast in a wheelchair.

The BCI then listens to the electrical signals of the brain. It uses two software programs:

- 1 EmotivBCI collects brain signals and decides if any of them match the child's command thought.
- 2 Mindset takes that decision and sends a matching output to control toys, games, and more!



Where is the child's data stored?

Mindset does not store any information. EmotivBCI may store EEG data and a username on their cloud server.

EEG data:

- consists of electrical signals and motion sensor information that are collected when Emotiv devices are being used
- includes information collected from the electrical signals, such as command thoughts (e.g. thinking about clapping) and performance metrics (i.e. information used to see how well the headset and BCI software are working).

A.B.

Usernames can be a nickname or initials. Usernames help protect the child's privacy.



The EEG data, on its own, is not personal information. The data does not and cannot identify the child.

When children are no longer part of the program, their username and data will be deleted. Emotiv may keep the EEG data.

