



IntendiX - P300 EEG Spelling Devices

Emlyn Clay
OpenVivo Ltd.

Who are we?

- ▶ OpenVivo Ltd is the UK distributor and technical partner.
- ▶ Gtec is the manufacturer of the equipment, hardware and software.

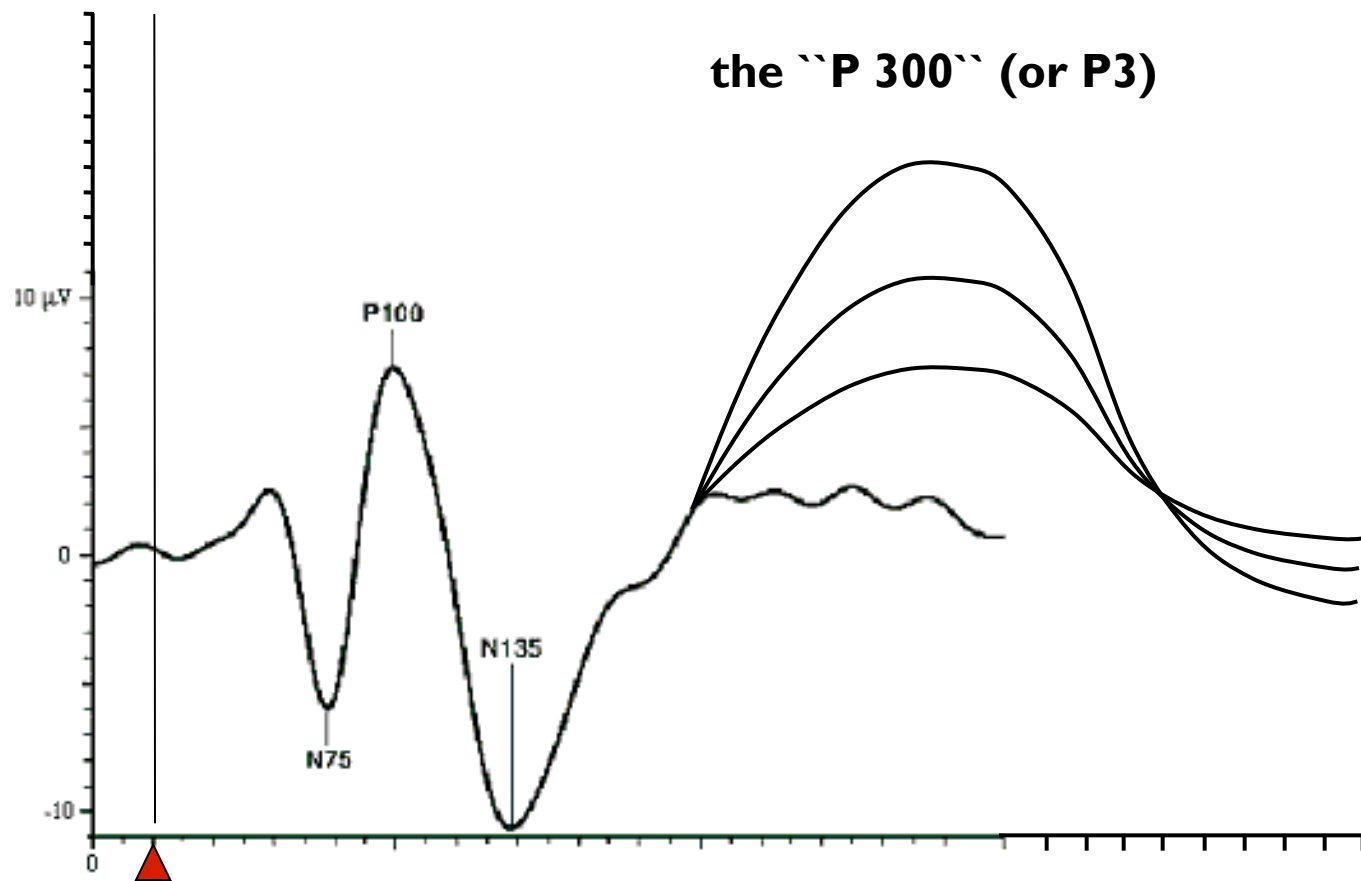


EEG-based Communication Aids

- ▶ Patient wears an EEG cap.
- ▶ Electrodes are filled with conductive gel.
- ▶ Visual stimuli can evoke certain patterns that we can classify.
- ▶ Match the EEG pattern to the event that happened.



The P300



visual stimulation **with cognitive relevance**

IntendiX

- ▶ The *only* commercially available P300 speller.
- ▶ Designed to be used by care staff.
- ▶ Has been available for a 1½ years.
- ▶ Offers certain features, not available in gaze-based devices.



Who can use it?

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How many people are able to control a P300-based brain–computer interface (BCI)?

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- 89% can achieve a 80–100% accuracy.
 - 5min of training data.
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Who is it designed for?

- ▶ The severely physically disabled.
- ▶ Locked-in patients.
- ▶ ALS
- ▶ Trauma to the brain and brainstem



What will you see?

Rows- and Columns- Flashing

A	B	C	D	E	F
G	H	I	J	K	L
M	N	O	P	Q	R
S	T	U	V	W	X
Y	Z	0	1	2	3
4	5	6	7	8	9

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Limitations

- ▶ Requires concentration, training and wet gel.
- ▶ ‘Zero’ class problem.
- ▶ Flashing can be annoying – this can be mitigated.
- ▶ Less lexicographic development than other aids.



Advantages

- ▶ Good for patients with poor fixation.
- ▶ The P300 has cognitive relevance.
- ▶ A technology on the rise with potential to outpace current devices.





Questions?

Thank you!