



Developing of Anti-Stuttering Device

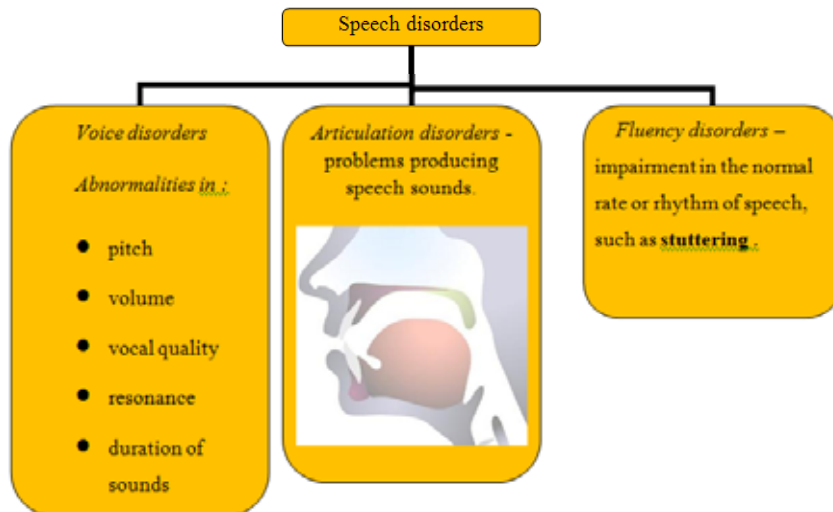
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Speech Disorders Classification



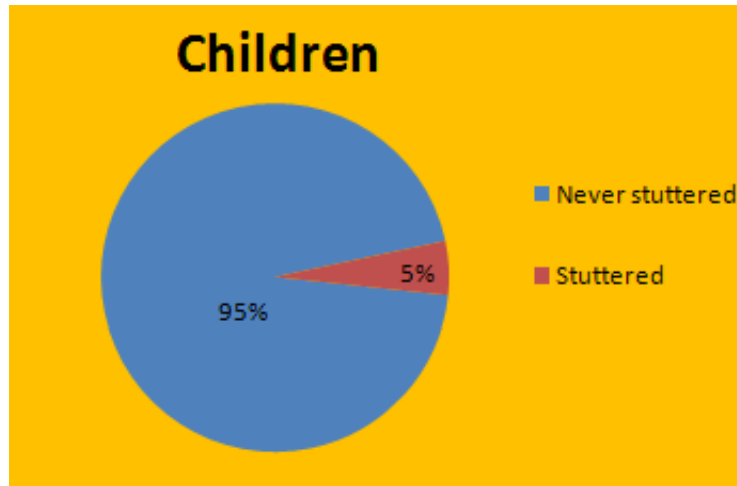
Problem of Stuttering



Stuttering is a speech disorder in which the flow of speech is disrupted by involuntary repetitions and prolongations of sounds, syllables, words or phrases, and involuntary silent pauses or blocks in which the stutterer is unable to produce sounds.

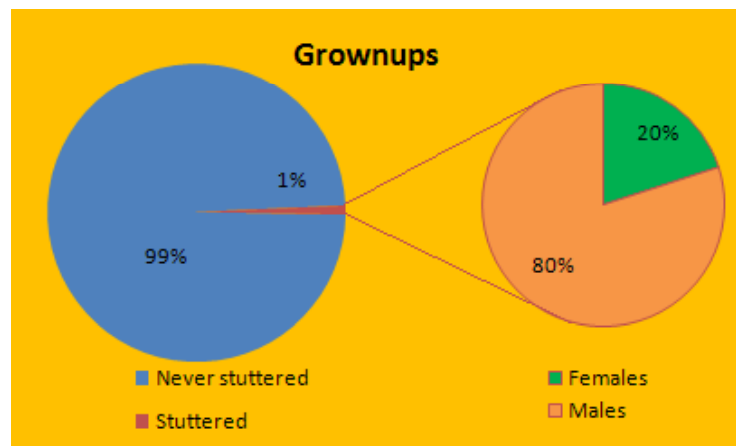
Stuttering is often referred to a fluency disorder because it disrupts the smooth flow of speech.

Statistics I



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Statistics II



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Causes of Stuttering

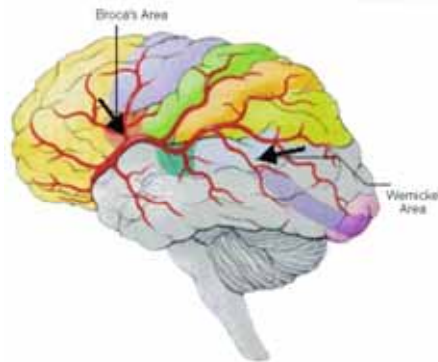


Experts are not sure what causes stuttering

Genetic



Neurogenic



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Approaches in Treatment Methods of Stuttering Therapy



No	Name	Content
1	Fluency shaping therapy	Trains stutterers to speak fluently by controlling their breathing, phonation, and articulation (lips, jaw, and tongue). Fluency shaping approaches are often taught in intensive group therapy programs, which may take two to three weeks to complete.
2	Stuttering modification therapy	The goal of stuttering modification therapy is not to eliminate stuttering but to modify it so that stuttering is easier and less effortful.
3	Anti-stuttering medications	In this method pharmacological agents, such as anti-convulsants, anti-depressants, antipsychotic and antihypertensive medications, and dopamine antagonists are used.
4	Anti-stuttering devices	Altered auditory feedback, so that stutters hear their voice differently, have been used for over 50 years in the treatment of stuttering. Altered auditory feedback effect can be produced by: <ul style="list-style-type: none"> speaking in chorus with another person, providing blocking out the stutter's voice while talking (masking), delaying the stutter's voice slightly (delayed auditory feedback) altering the frequency of the feedback (frequency altered feedback). Studies of these techniques have had mixed results, with some stutters showing substantial reductions in stuttering, while others improved only slightly or not at all.

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Delayed Auditory Feedback (DAF)



User hears his or her voice in headphones, delayed at a fraction of a second.

Research	Task	n	Times	4 msec	25 msec	50 msec	75 msec	195 msec
Webster, 1991	Reading	9	1	28%				
Kalinowski, 1993	Reading	9	1			55%		
Sark, 1996	Reading	14	3		50%	71%	75%	
Brenaut, 1995	Telephone conversation	7	4				34%	
Zimmerman, 1997	Telephone conversation	7	2				62%	
Averaged	All	55	4	28%	50%	71%	62%	85%
Averaged	Reading	39	4	28%	50%	71%	76%	85%

n – number of stutters, *Times*– number of testing times of one stutter.

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Overview of Speech Delaying Devices for Stuttering Treatment I



1. Device for treatment of stuttering and speech defects

- "Put' domoy" Ltd.
- The invention refers to the medicine field and is designed to eliminate the stuttering, speech and hearing correction, arising from brain injuries. The device allows to correct the shortcomings of speech, to develop auditory perception, to preserve information in the relevant departments of the brain.
- 3,5 kg, 300mm x300mm x135mm
- Portable
- Power consumption – less than 35 W.
- Two independent lines operate in the range of 0-1999 msec.

2. AKR-01 «Monolog»



- "Globus A" Ltd.
- The device is used to treat stuttering. The device enables continuous use for the development of the correct speech not only at home or in hospital, but also in public places, as well as any relevant to the user settings. The device is effective in itself and as adjuvant in the treatment of stuttering, using a variety of methods.
- 80 g, 105mm x75mmx30mm
- Portable
- Input audio signal – 5mV-20mV, audio signal frequency 100Hz -1200HZ, telephone channels – 1,
- discrete adjustment of the delay of input audio signal - 0ms to 200ms, step signal delay - 10ms,
- metronom discrete Frequency , frequency range - 30 to 120 cycles per minute,
- step Frequency metronome - 10 strokes/ minute, power Source - Rechargeable Battery ,
- duration of continuous operation the instrument - at least 3 hours.

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Overview of Speech Delaying Devices for Stuttering Treatment I



3. DEFSTUT



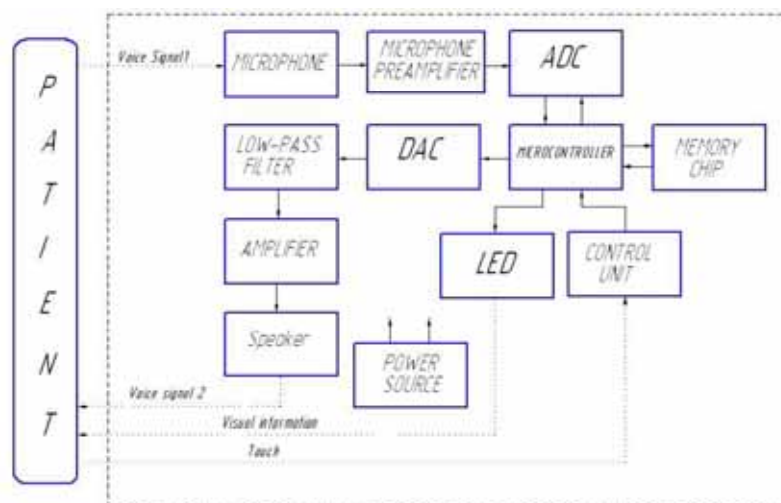
- The device can be classified as a form of fluency-shaping therapy. In this kind of therapy, you learn to speak fluently.
- 60mm x 104mm x 20mm
- Anti-stuttering technology: DAF, MAF.
- Monaural (one ear) or binaural (two ears).
- 15 bits sound quality (very clear sound).
- Adjustable, accurate to within 1 millisecond.

4. Vocal tactile feedback method and associated apparatus



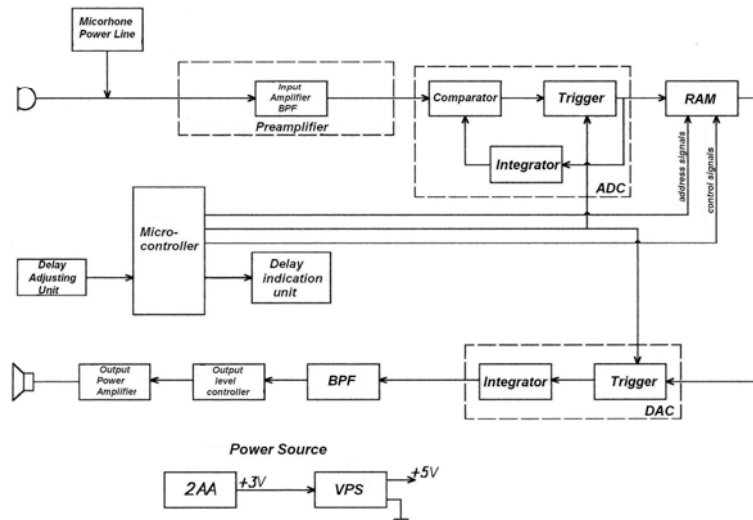
- University of Pittsburgh, Pittsburgh; Pa
- Vocal tactile feedback method and associated apparatus for stuttering treatment and other speech and hearing disorders.

Biotechnical System of Speech Correction



KASKAD EHO

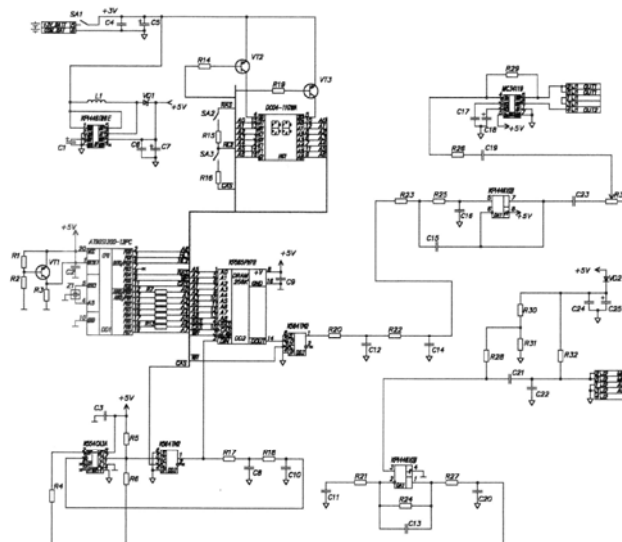
Schematic Diagram



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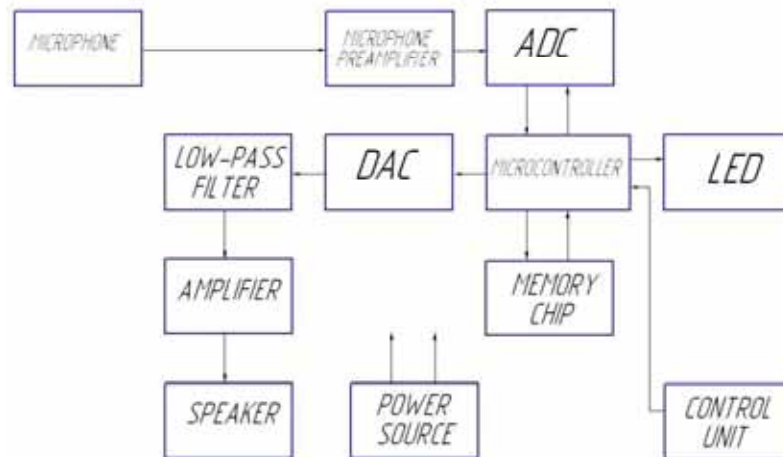
KASKAD EHO

Electric Basic Scheme



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Our Device's Developing Schematic Diagram I

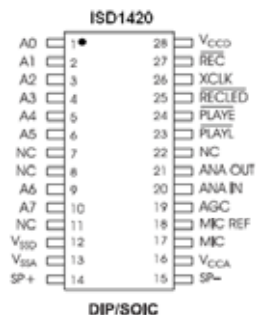


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Chip ISD1420



Information Storage Device **ISD1420** ChipCorder® provides high-quality, single-chip record/playback solutions to short-duration messaging applications.



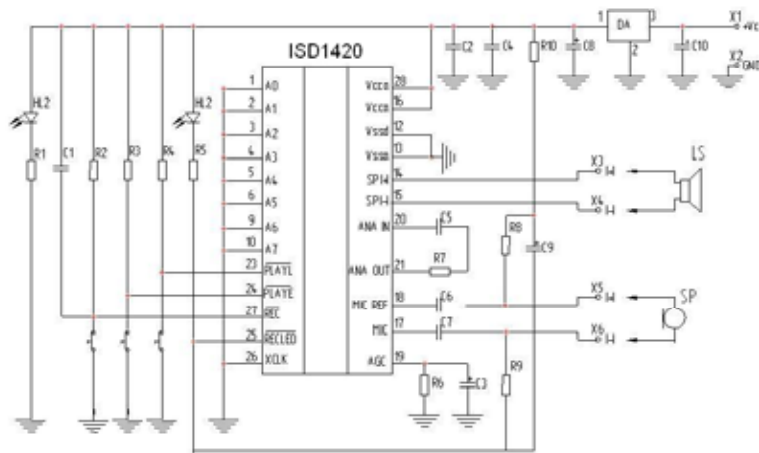
ISD1420 includes:

- an on-chip oscillator
- microphone preamplifier
- automatic gain control
- antialiasing filter
- smoothing filter
- speaker amplifier

Address and functions are controlled by serial interfaces Serial Peripheral Interface (SPI) or Microwire Serial Interface.

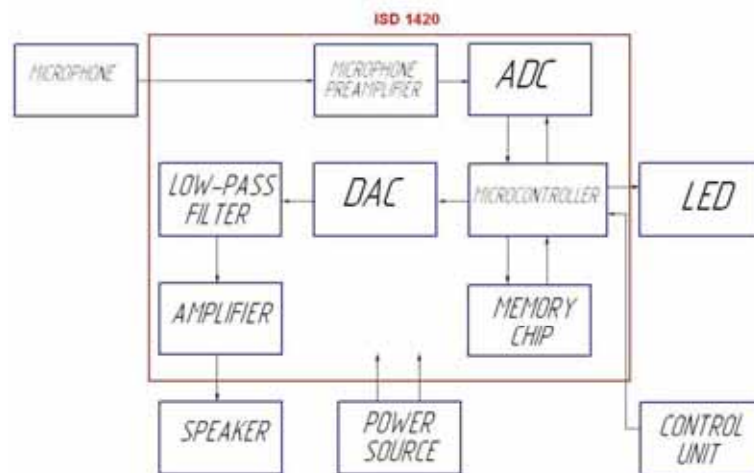
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Typical Example of Chip ISD1420 Application



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Our Device's Developing Schematic Diagram II



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**Thank you for your
attention!**

**Vielen Dank für Ihre
Aufmerksamkeit!**

Спасибо за внимание!