

# Milktooth

Child Safety Track

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- Detect presence of parent's mobile phone via Bluetooth
  - Enable/disable navigation filters on the laptop automatically
    - Full Internet access when parent's phone is near the laptop
    - Tailored content for kids when the phone is far away
    - No need to remember to lock your laptop or change user/settings
  - It works smoothly if you always keep your phone in your pocket

- Perform server-side content adaptation
  - Most existing systems are based on self-labeling (RTA, SafeSurf, PICS), blacklists, content analysis
    - They usually block whole domains or pages
  - Proposed solution is based on additional data passed from client to server
    - More fine-grained than client-side blocking
    - Adapt single page elements (e.g. pictures, video, articles, ...)
    - Content tailoring, not censorship
    - Voluntary self adaptation by webmasters
  - Examples
    - Enable SafeSearch on Google search services and YouTube
    - Enable warning on information sharing on social networks (Facebook, Google+)
    - Potential help in age verification processes

## The two functions can be implemented independently

- Bluetooth detection
- Content adaptation

(but they work nicely together in this demo!)

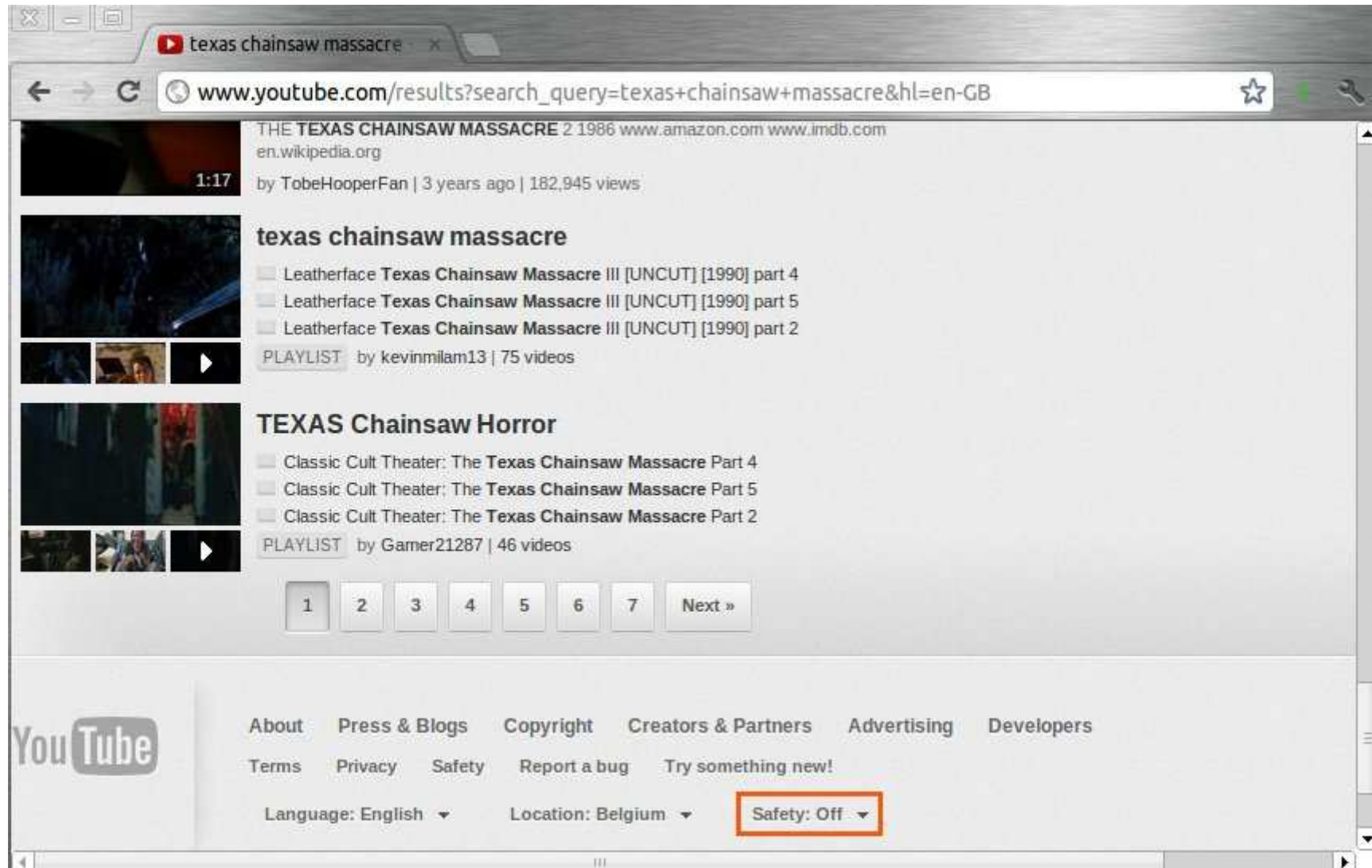
# Live Demo

TEAM MILKTOOTH  
CHILD SAFETY TRACK

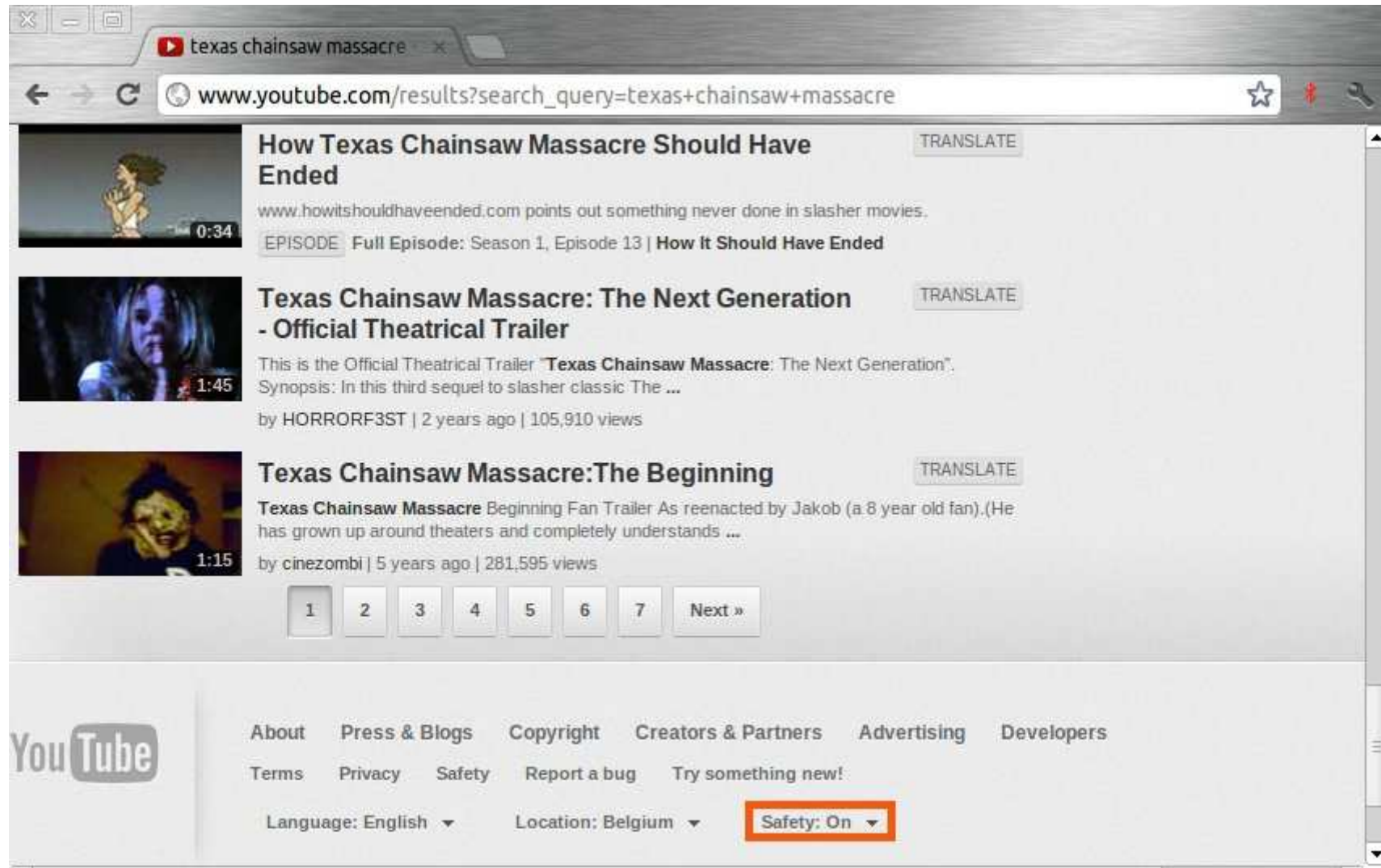


-COUNT  
VITSA!!  
Halle  
-r...  
-Bluetooth  
-d

# Mommy is nearby



# Mommy is in the next room



The screenshot shows a web browser window with the address bar displaying 'www.youtube.com/results?search\_query=texas+chainsaw+massacre'. The search results are as follows:

- How Texas Chainsaw Massacre Should Have Ended** (0:34)  
www.howitshouldhaveended.com points out something never done in slasher movies.  
EPISODE Full Episode: Season 1, Episode 13 | How It Should Have Ended
- Texas Chainsaw Massacre: The Next Generation - Official Theatrical Trailer** (1:45)  
This is the Official Theatrical Trailer "Texas Chainsaw Massacre: The Next Generation".  
Synopsis: In this third sequel to slasher classic The ...  
by HORRORF3ST | 2 years ago | 105,910 views
- Texas Chainsaw Massacre: The Beginning** (1:15)  
Texas Chainsaw Massacre Beginning Fan Trailer As reenacted by Jakob (a 8 year old fan). (He has grown up around theaters and completely understands ...  
by cinezombi | 5 years ago | 281,595 views

Navigation buttons: 1, 2, 3, 4, 5, 6, 7, Next »

Footer: YouTube logo, About, Press & Blogs, Copyright, Creators & Partners, Advertising, Developers, Terms, Privacy, Safety, Report a bug, Try something new!, Language: English, Location: Belgium, **Safety: On**

# Daddy is nearby

BBC - Homepage

milktooth.eu/bbc/

**BBC** News Sport Weather Travel Future TV Radio More...

**Enroll in Online Banking**  
Take charge of your money with 24/7 access

**Toulouse hostage gunman arrested**  
French police detain a gunman who held four people hostage at a bank in the southern city of Toulouse for almost seven hours.

**First test tube baby mother dies**  
The woman who gave birth to the world's first test tube baby in 1978 after pioneering treatment has died, it is announced.

**Business**  
**P&G issues second profits**  
Bond yields fall after G20 summi

Marketwatch (min delay 15 mins)	
Dow Jones	12833.09
Nasdaq	2933.57
FTSE 100	5622.29
Dax	6392.13
Cac 40	3126.52

**Sport** **Future**

Blatter renews call for goal-line    Going under the knife    Why are we so curious?



# Daddy is at work :-)

BBC News Sport Weather Travel Future TV Radio More...

## i|Dance

**Sesame Street film 'in the works'**  
A new Sesame Street movie is thought to be in development, following reports that Fox has purchased film rights to the iconic TV show.

**First test tube baby mother dies**  
The woman who gave birth to the world's first test tube baby in 1978 after pioneering treatment has died, it is announced.

**Egypt's Mubarak 'health worsens'**

**US acts to cut borrowing costs**

**Assange faces arrest, say police**

**Syria 'truce' to evacuate Homs**

**Afghan suicide attack kills many**

## Business

**P&G issues second profits**

**Bond yields fall after G20 summit**

Marketwatch (min delay 15 mins)

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## Sport

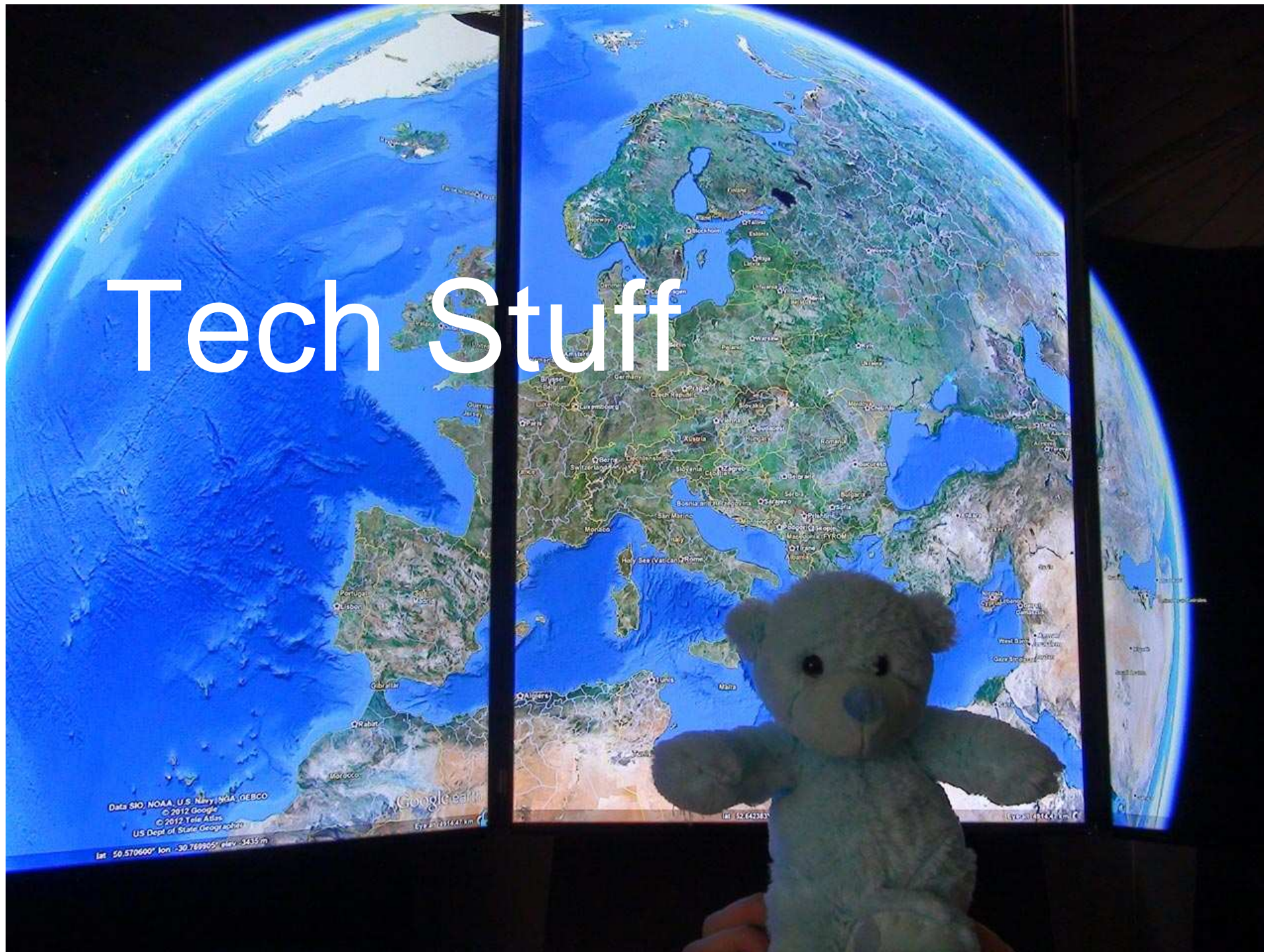
**Blatter renews call for goal-line**

## Future

**Going under the knife**

**Why are we so curious?**

# Tech Stuff



- Platform: Linux (Ubuntu)
- Client Languages
  - Shell scripting
  - Javascript
  - Chrome browser extension
- Server Language
  - PHP
  - Simulated YouTube interaction through cookie injection

- Estimate phone distance by measuring received power
  - Precise within a few meters
  - A different room is detected easily
  - Uses standard Bluetooth equipment on laptops
- Bluetooth on mobile phone must be switched on
  - Works when device is not discoverable
  - No special apps needed on mobile device
  - MAC addresses could be stored in hashed form for privacy
- Alternatives
  - NFC (Near Field Communication)



- Client side
  - Embedded into existing parental control apps or OS (Microsoft Family Safety, Cybersitter, Netnanny, ...)
  - Integrated with mobile carrier parental control systems
- Server side
  - Implemented at major service providers
    - Driving force for a broader adoption
  - Open protocol specification allows self implementation of content adaptation
- The above would require a strong will to support the idea by big Internet player
- Optional: Client side, Bluetooth detection
  - Standalone application, interfaces with parental control systems



Thank you!

# Extra Slides

- Simple flag: “please adapt the page for minors”
- Full content classification
  - Like PICS and similar protocols
  - Allows separate adaptation on violence, sexual content, bad language, etc.
  - Server side implementations require more effort



Data passed in the HTTP Request header:

- HTTP extension header

- RFC 2616, section 7.1
- e.g. "X-MT-Content:18"

- Or User-Agent

- *"...contains information...for...automated recognition of user agents for the sake of tailoring responses to avoid particular user agent limitations"*  
RFC 2616, 14.43
- e.g.  
"Mozilla/5.0 (X11; Linux x86\_64) AppleWebKit/536.5 (KHTML, like Gecko) Chrome/19.0.1084.56 Safari/536.5 **MT-Content/18**"
- User Agent is often logged by web servers

- Malicious web servers can have an indication that the user might be a minor
  - Although I’m saying “I don’t like to receive adult content”, not “I am a kid”
- Possible solutions
  - Send header to whitelisted web sites only
    - Keep a registry of trusted web sites that implement the protocol in a useful way
    - Hard to maintain, good for major sites only
  - Develop a system based on digital certificates and signatures
    - Send an encrypted header, it can be decoded by trusted servers
    - And/or trusted servers answer with a signed HTTP response header
  - ...waiting for proposals !