Internet of Things: Presentation notes

1. **Greeting and introduction** ***[Ma]***
   - Hello + welcome
     Covered aspects (pos/neg)
     looked at use cases / existing applications

2. **General information** ***[Mo] (GI, Usage, Positive aspects)***
   describes all devices > connected to internet / other devices
   sensors, actuators (execute, lights / door locks)
   smart devices (smart TVs)

   pos. asp: industrial automation easier f. Manufacturers > predict/avoid machine failures
   track ordered products on webstie in real-time.

   No IoT = no self-driving cars, have to be connected to a network for parking slots / preventing accidents

3. **Negative aspects [Ma]**
   Every new technology > downside
   security - some devices = nightmare
   default passwords: (e.g. admin/admin)!! advice: to disable UPnP for whole home network: disallows devices to forward any ports.

4. **Dash button [Ma]**
   intended use: buy a product just by pressing it, automatically orders the product via WiFi - Creative people found ways to use it for own projects: detecting if it's on the network or not
   this year, German consumer protection org. ruled Dash buttons break protection laws. Amazon stopped selling buttons

5. **Discussion [Mo]**
   asked ourselves: really need the IoT? Conclusion: smart devices = useful thing - can't stop the future | next years: IoT huge topic
   easier to integrate devices into new buildings if wired conn. req.
   Aware of programming needed sometimes. into programming? create own smart devices w/ dev boards: Arduino, NodeMCU, RPi.

6. **Heating stats [Mo]**
   In app we're requesting data (temps) heating system in Abtenau
   table of curr temps + another table w/ settings
   data called up every minute. Chart = history of temps. Acc to timespan.
   Choose timespan w/ slide, click rectangles to hide/show curve.

7. **Heating stats: Description [Ma]**
   information abt. How the whole thing works. RPi requests data from the heating system w/ serial port. Hex data is then processed by FHEM (home auto SW) + uploads data to web server.

8. **Explanation of used code [Ma]**
   Slides!!
   Resümat CD4 (from 2002) -> RS232 ser. Port. Avail.
   Proto. Using hex data, rev. eng. in online. forums
   Read/write options, CRC-16 w/ special params

   Example command for protocol
   10 02 and 10 03 mark start/end
   01 15 = mode (read)
   offset and bytes to read after offset
   last bytes are the CRC checksum

   after requesting all data: comparing values w/ displayed data and noting addresses + length
   floats stored as IEEE 794

   an eternity later: found out all addresses
   inserted data into a fhem plugin (perl) + added improvements to it
   requested + processed every minute

9. **Finally [Mo]**
   thanks 4 attention. Further qu?