Internet of Things: Presentation notes

1. **Greeting and introduction** ***[Ma]***
   - Hello and welcome to our presentation about the Internet of Things.
     My name is M. and this is my classmate M.
     We covered several aspects (positive and negative) and took a look at some use cases and existing applications of the IoT.

2. **General information** ***[Mo] (GI, Usage, Positive aspects)***
   The Internet of Things describes all devices that are connected to the internet or other devices. This includes sensors, actuators (execute operations, e.g. lights and door locks) and smart devices (e.g. smart Tvs).

   Now I'll talk about some positive aspects: The IoT made industrial automation a lot easier for manufacturers. E.g. to predict and avoid machine failures. Thanks to the Internet of Things, we can track ordered products on a website in real-time.

   Without the IoT, self-driving cars wouldn't even be possible. The cars have to be connected to a network to find parking slots and to prevent accidents.

3. **Negative aspects [Ma]**
   Every new technology has a downside. When it comes to security, some IoT devices are a nightmare. Default passwords are the biggest problem. (e.g. admin/admin). An advice is to disable UPnP for your whole home network: This disallows devices to forward any ports on their own.

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

5. **Discussion [Mo]**
   We asked ourselves whether we really need the Internet of Things. We've come to the conclusion that smart devices are a useful thing and that we can't stop the future. The IoT will be a huge topic in the next years.
   It's easier to integrate IoT devices into new buildings if they require a wired connection.

   But, be aware that you have to be able to program in some cases. If you're into programming, you can create your own smart devices with development boards like the Arduino, NodeMCU or the Raspberry Pi.

6. **Heating stats [Mo]**
   In our web app we're requesting data like temperatures from a heating system in Abtenau (Salzburg). You can see a table of the current temperatures, and another table of the settings. The data gets called up every minute. The chart displays the history of the temperatures according to the selected timespan.

   You can choose the timespan with the slider. By clicking the rectangles you can hide/show a specific temperature curve.

7. **Heating stats: Description [Ma]**
   Now, here's some information about how the whole thing works. A Raspberry Pi requests the data from the heating system via the integrated serial port. The hexadecimal data is then processed by FHEM (software for home automation) and uploads the data to a web server.

8. **Explanation of used code [Ma]**
   Slides -> reverse engineering protocol, finding the mem. addr.

9. **Finally [Mo]**
   Thanks for your attention! Are there any questions?