If This Then What? - Agile Engineering of IoT Applications

- An European Master Team Project in Cooperation with Babeș-Bolyai University Cluj

Supervisor: Fabian Burzlaff
Reviewer: Prof. Dr. Heiner Stuckenschmidt
Goal

Gain hands-on experience with implementing IoT apps in combination with state-of-the-practice programming frameworks.

- **Automatically turn on your Hue lights on when you unlock your August Smart Lock** by augusthome (3.5k)
- **Blink your lights when your doorbell rings** by Ring (8.5k)
- **If I arrive at my house then open my garage door** by Garageio (923)
- **Play a spoken notification when someone unlocks the door** by Oticon (68)

Source: IFTTT, https://ifttt.com/my_applets
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Problem

Unfortunately, there exists no single data- and service model to control all devices

Source: XDC, https://xkcd.com/927/
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Task

- Develop visual automation flows for your smart home scenarios
- Integrate available IoT devices and web services using their interfaces into your flow
- Execute your scenarios on different infrastructures

Source: Pixabay, https://pixabay.com
Technical Environment

1. Design your IoT App
2. Connect Endpoints
3. Execute!
4. Devices change
5. Implement an Adapter

- Weather Now
- If tempc > 15
- Fitbit activities
- If summary_steps < 1000
- user@email.com

If

What?
Challenge

Can you beat classical adapter implementation using a novel, web-based integration tool?
Organization

- M.Sc. Business Informatics
- Language: German/English
- The project starts October 2020
- Duration: 6 months (1 semester)
- Team members: 2-3 Mannheim students and 2-3 Cluj students

Possible Technologies and Frameworks:

- Node-RED: https://nodered.org/
- Web-based Integration Tool: https://integrateit-41c60.web.app/
- Frameworks: Angular, Google Firebase, OpenAPI, Mockoon, POSTMAN
Requirements

• Programming skills (e.g., Java, JavaScript)
• Experience in version control systems (e.g., Git)
• Beneficial: Know-How in Software Architectures (e.g. Event-driven Services or Microservices)
• Desirable soft-skills:
  • Open-minded character
  • Outstanding teamwork
  • Great communication skills

• Last but not least: High motivation and interest in the topic!
Thank you for your attention!

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