

***Gamified Internet of Things Testing
within a Virtual Learning
Environment - The interactive
simulation game "IoTCityLab"***

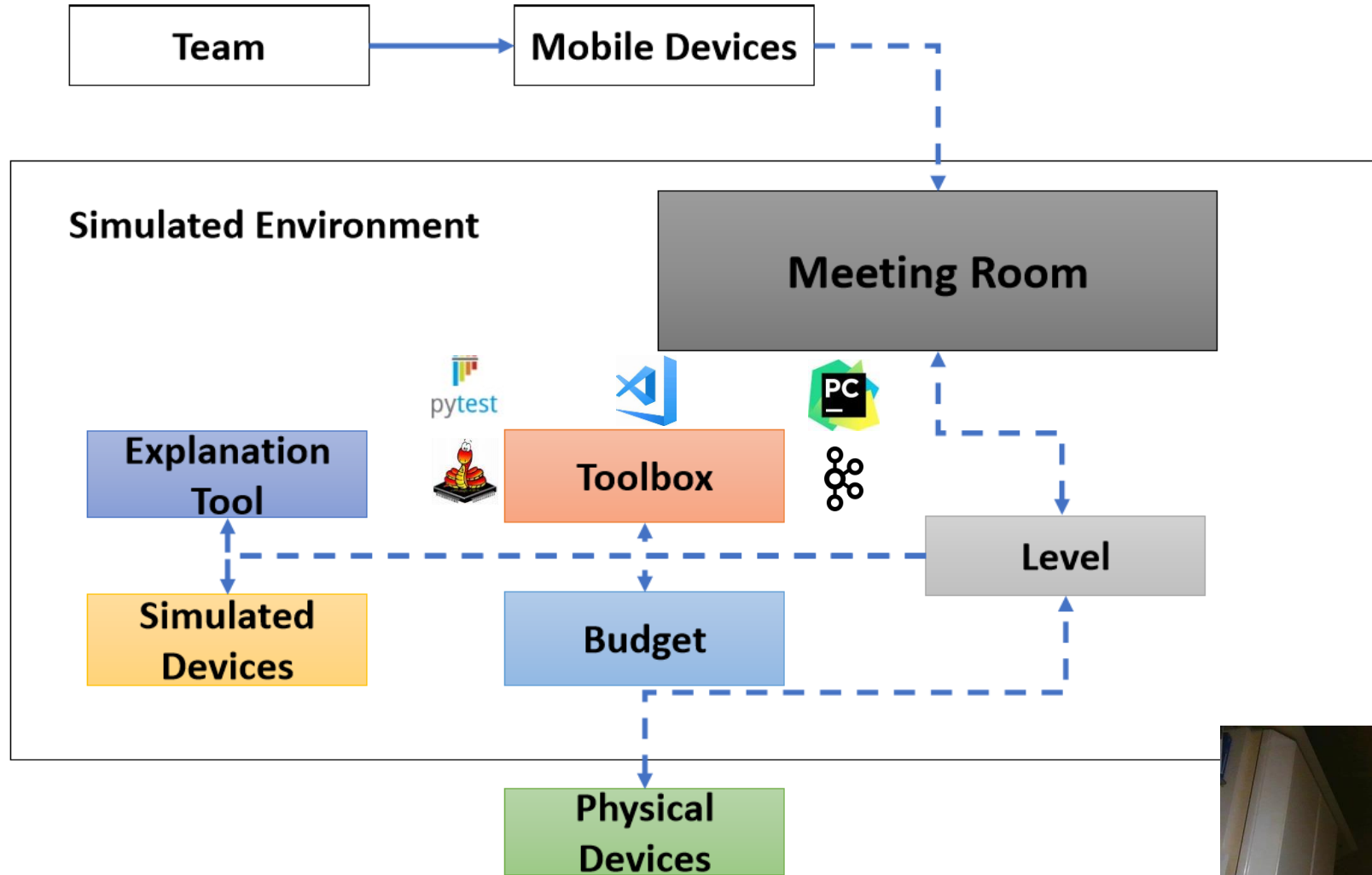
SE Games 2020, Thomas Auer, 10 November 2020

IoT City Lab

Simulation Game



The Game Environment



Case Study



Lane Assistant:

- ✓ Keep vehicle in track
- ✓ Turn left/right onto track

Traffic Light Recognition:

- ✓ Start vehicle
- ✓ Stop vehicle
- ✓ Start engine

depending on traffic light status



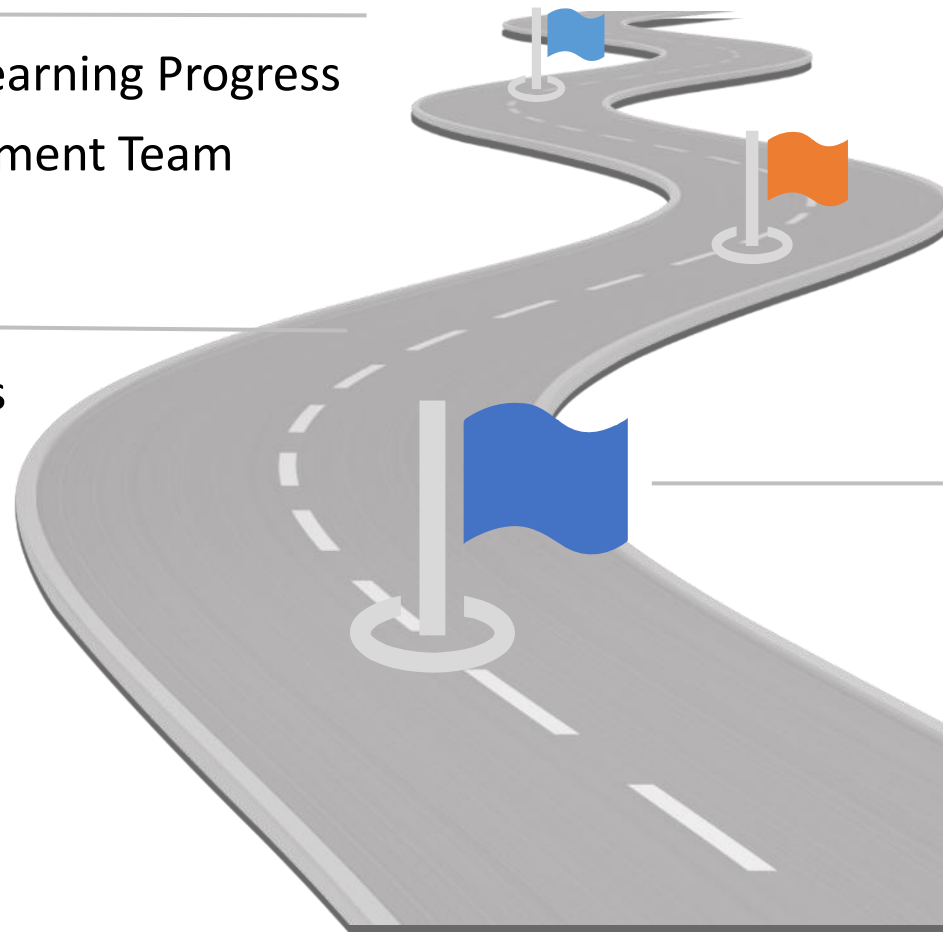
Game Process

Retrospective

- ✓ Analysis Learning Progress
- ✓ Announcement Team Scores

Game Unit

- ✓ Design Thinking Process
- ✓ Allocation of roles
- ✓ Sprint
- ✓ Sprint Review
- ✓ Sprint Retrospective

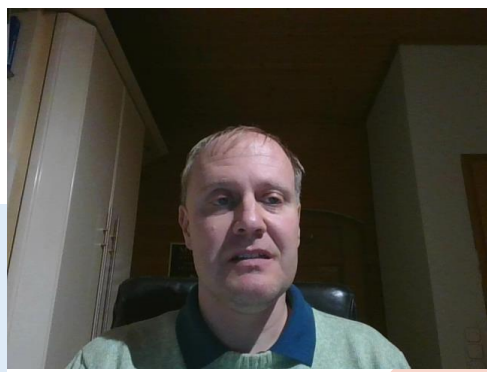


Assessment Center

- ✓ Candidates meets trainer
- ✓ Evaluation Learning Objectives
- ✓ Assignme



The Roles



Tasks:

- ✓ Moderation of daily stand-up meetings
- ✓ Ensure a smooth project course

Client

Tasks:

- ✓ Trainer holds this role
- ✓ Give instructions
- ✓ Lead the game

SCRUM Master

Product Owner

Tasks:

- ✓ Management of the product backlog
- ✓ Decide about end of a sprint
- ✓ PoC to client

Tasks:

- ✓ Automate regression test set

Test Automation Engineer

Test Analyst

Tasks:

- ✓ Design test plan in coordination with Product Owner
- ✓ Design regression test set

Game Scoring

SCRUM Master

✓ Successful mediation of contributions (1 Credit)



✓ Total Score SCRUM Master

Product Owner

✓ Artifact accepted by client (1 Credit)



✓ Total Score Product Owner

Test Analyst

✓ Released test case (1 Credit)



✓ Total Score Test Analyst

Test Automation Engineer

✓ Successful automated test case (1 Credit)



✓ Total Score Test Automation Eng



✓ Total Score Tea



Benefits

Benefits:

- ✓ Role-based collaborative lessons
- ✓ Customized learning units related to individual learning objectives
- ✓ Gamified approach for learning Internet of Things Testing interactively
- ✓ Multi-Player Game – Focus on team work
- ✓ Modular game design



Contribution for Industry and Science

(Young) Professionals in IT Quality Assurance

- ✓ Targeted, interactive further training of testing experts to Internet of Things testing experts
- ✓ Promotion of team skills among distributed project teams

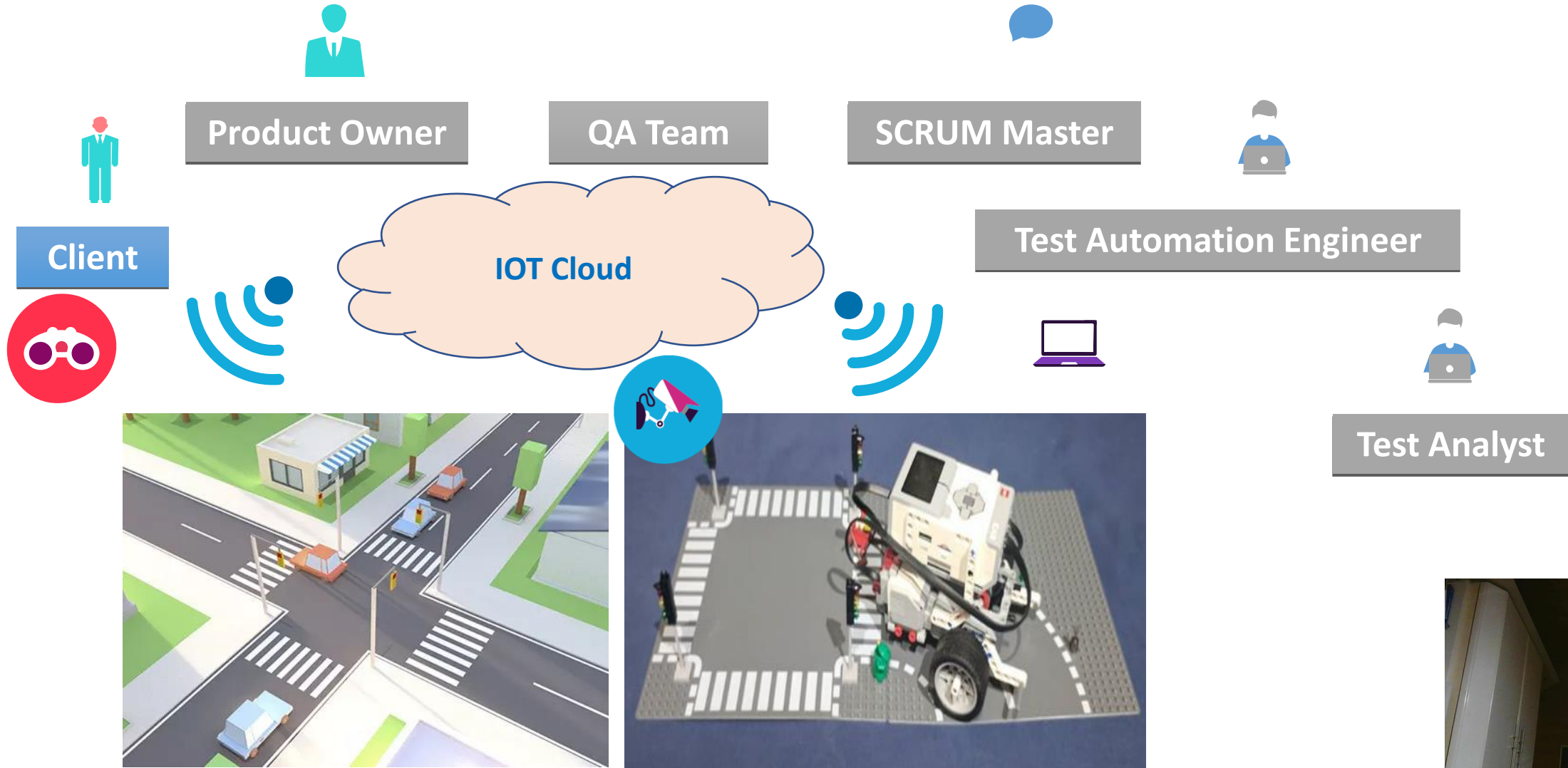
Students of Computer Science, Information Technology and similar subjects, Trainees in information technology or similar careers

- ✓ Gain interest for a future career in Internet of Things Quality Assurance
- ✓ Contribution for a present-day application field of Internet of Things



Prospects

✓ Extension of the simulated Learning Environment to a Digital Twin





People matter, results count.

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