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# Siemens Global University Challenge – Automation meets Edge

Fact Sheet | April 2018

**DRAFT**

## Goals of the Global University Challenge

The goals of the Global University Challenge 2018 are:

- Come up with new Edge Computing App ideas for solving real-world tasks in an industrial automation environment.
- Increase cooperation with universities and Siemens awareness on campus.
- Employer branding & talent engagement.

## The set up of the Global University Challenge

The “Global University Challenge” is an open innovation project organized by Siemens Digital Factory and Corporate Technology. Project lead is with Siemens Digital Factory.

Students of universities worldwide are invited to participate in the “Global University Challenge” and develop innovative ideas and prototypes for the upcoming Siemens Edge ecosystem for factory automation.

The universities are: Newcastle University (UK), University of Manchester (UK), University of Oxford (UK), University of Cambridge (UK), TU of Denmark (Denmark), Tsinghua Beijing (China), Shanghai Jiao Tong (China), Tongji University (China), Soochow University (China), TU Munich (Germany), RWTH Aachen (Germany), TU Berlin (Germany), FAU Erlangen-Nuremberg (Germany), KIT (Germany), TU Darmstadt (Germany), TU Dresden (Germany), University of Duisburg-Essen (Germany), TU Vienna (Austria), TU Graz (Austria), ETH Zurich (Switzerland), UC Berkeley (USA), Georgia Tech (USA), MIT (USA).

Students can team up in groups of maximum three. Siemens encourages team work in order to increase creativity and innovation processes amongst the participants.

The topic of the Global University Challenge is “**Automation meets Edge**”. The teams with the most promising concepts (maximum of ten teams) will be invited to an one week event with Siemens in Nuremberg, Germany. The event will include a Hackathon for further prototyping of their ideas.



## Background of students:

Any student of Siemens' worldwide strategic partner universities mentioned above can participate. We assume students of following faculties might be interested to join the Challenge:

- Computer Science
- IT / Informatics
- Data Science
- Mechatronic
- Automation Technology
- Mechanical/Electrical Engineering

## Timeframe of the Global University Challenge

The Global University Challenge consists of three phases:

### 1. **Idea generation** (online idea contest on a virtual co-ideation platform)

(Link tbd.)

- 30<sup>th</sup> of April 2018: Students start entering ideas on the platform and further develop their ideas based on comments from Siemens experts.
- 05<sup>th</sup> of June 2018: Final day to upload students' ideas. Siemens experts evaluate ideas.
- 08<sup>th</sup> of June 2018: Announcement of the 30 finalist teams.

### 2. **Idea refinement** (finalist teams develop a visualisation of their idea)

- 08<sup>th</sup> of June 2018: Beginning of idea refinement phase for the finalist teams, including Webinars with Siemens Industrial Edge experts.
- 24<sup>th</sup> of June 2018: Upload of visualisation. Siemens experts select 10 winning teams.
- 29<sup>th</sup> of June 2018: Announcement of the Hackathon participation teams

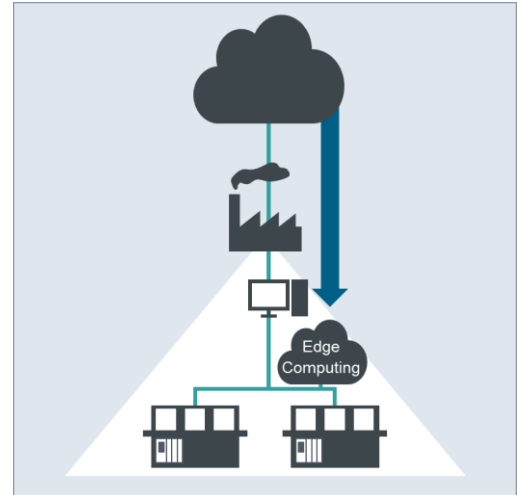
### 3. **Hackathon** with Siemens experts in Nuremberg (Germany)

- **8<sup>th</sup> -12<sup>th</sup> of October 2018 (tbd.):** Prototyping Hackathon in a start-up like environment. Travel expenses of students are carried by Siemens.



## Technical question of the Global University Challenge

Cloud Computing is at the heart of the Big Data revolution. But not all information from IoT devices can be transferred into the cloud. Restrictions can be low-bandwidth network links, battery-powered sensors which need to be energy efficient or high-security regulations where only aggregated data should leave the factory. Siemens' Edge Computing Platform brings the solution: Intelligent Apps on the field devices itself can now use machine learning and data analysis to enhance the functionality of automation systems and machines. Users of automation system would like to benefit from today's and future improvements to efficiency, availability and production quality of their machine delivered in a flexible way with a speed of innovation typical for IT system.



**We are looking for new applications inside the upcoming Edge ecosystem. Students will be asked to gather new ideas on future business models.**

Ideas should focus on at least one of the below mentioned potentials of Edge Computing:

- **Usage of open standards:** High-level programming languages with web communities and standard interfaces required
- **Machine learning:** Model based machine learning and artificial intelligence
- **Connecting Automation & IT:** Usage of various physics & protocols and Connecting brown-field applications to the cloud via retrofitting
- **Increasing data volumes:** Capturing and monitoring high-frequent and high-volume data directly next to the machine on the field level
- **Growing performance requirements:** Intelligence in the field required for data pre-processing and analytics
- **Changing decision makers:** Sales staff need to address not only OT but also IT decision makers

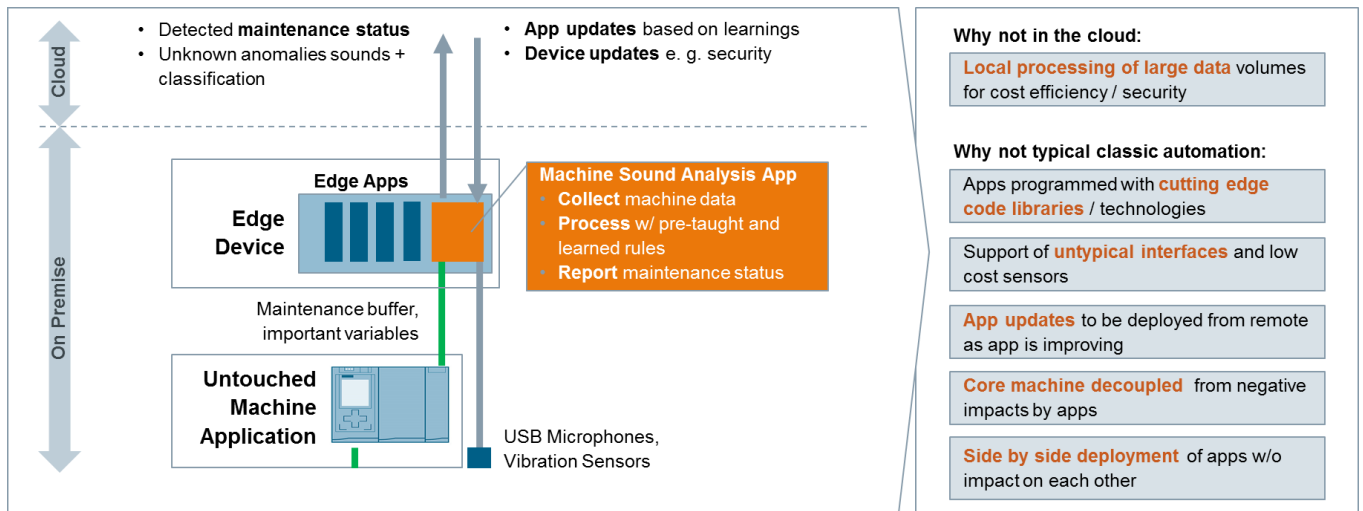
The selection of ideas will be made by Siemens Digital Factory experts and Corporate Technology. Ideas will be evaluated according to the following criteria:

- **Innovativeness:** Incremental or disruptive innovation
- **Automation & Digitalization:** Degree of automation and data digitalization
- **Feasibility:** Degree of technical and/or economical feasibility
- **Potential:** Fit to Siemens Digital Factory processes, products and markets
- **Implementation:** General implementation efforts (time to market, R&D costs, etc.)



## Edge App Example

### Condition monitoring via machine sounds



### Prizes (What's in for the students)

- Hackathon participation (travel accommodation & catering paid by Siemens)
- Great opportunity to secure yourself a spot out of an pool of internships and theses
- Privat visit to the future factory of Siemens in Amberg
- Pitching with high-ranked Siemens Management audience
- Tech prizes for the winning students... ☺

### Contacts:

#### Overall Global University Challenge Project:

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- Vitaliy Volevach, [vitaliy.Volevach@siemens.com](mailto:vitaliy.Volevach@siemens.com) (Technical Leader)
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Link to the idea generation contest (mindjet):

*Link tbd.*

Link to Digital Factory:

<https://www.siemens.com/global/en/home/company/about/businesses/digital-factory.html>

Link to Corporate Technology:

<https://www.siemens.com/innovation/en/home/corporate-technology.html>