

From innovation to implementation - SME collaboration in student projects

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From innovation to implementation - SME collaboration in student projects

The Center for Bachelor of Engineering Studies at the Technical University of Denmark (DTU Diplom) [1] provides B.Eng. programs with the Conceive Design Implement and Operate framework [2] as a central element. Courses are designed to be a source of innovation, particularly in relation to small and medium sized enterprises (SME) in the region. The project based courses teach students to undertake the analysis, design and implementation of systems which are relevant to and in cooperation with SMEs.

Design and Build with SMEs

An example of such a course is the “Design Build Project” course [3], undertaken by second year students as part of the B.Eng. in Healthcare Technology [4]. The cooperating SME identifies application areas of specific relevance and interest to them e.g. object location and tracking using iBeacons [5]. These areas are then used as starting points for the student projects, see Fig.1. Many aspects of a project’s phases are addressed in a lean, iterative approach with topics and artefacts including: idea generation, business model canvas, sustainability, user experience, product prototypes and iOS application development.

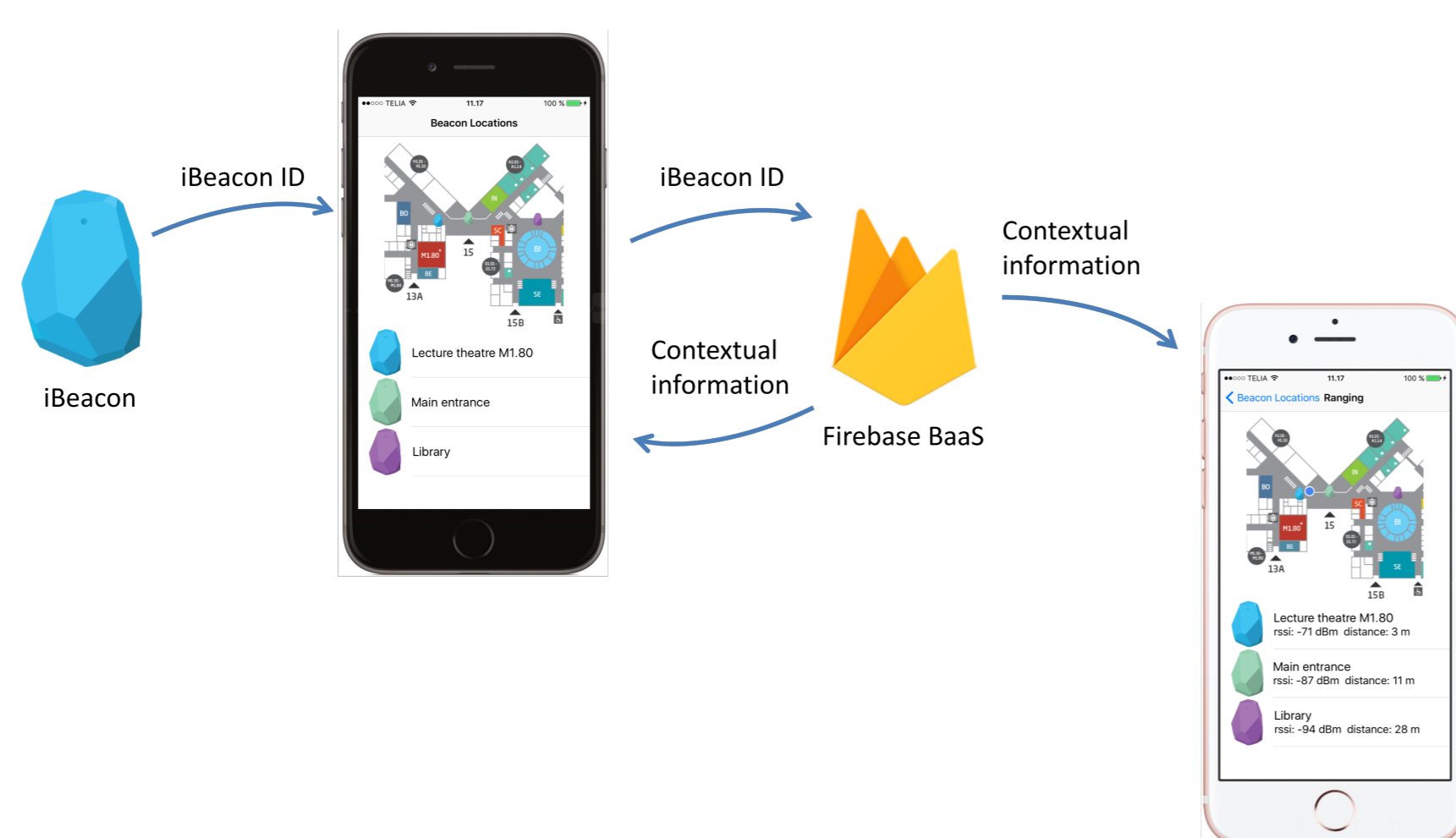


Fig.1 Object location and tracking using iBeacons

Benefits

Working with SMEs provides the students’ projects with extra dimensions such as specialized domain expertise and system overview. Student projects provide SMEs with opportunities to experiment with new technologies and innovative approaches.

References:

[1] DTU B.Eng. programs, www.dtu.dk/english/Education/Bachelor--BEng-and-BSc-/BEng

[2] CDIO Initiative, www.cdio.org

[3] Course 62521 “Design Build Project”, kurser.dtu.dk/course/62521

[4] B.Eng. Healthcare Technology, http://www.dtu.dk/english/education/bachelor--beng-and-bsc-/beng/healthcare_technology

[5] Estimote Beacons, <http://estimote.com>

Optimizing SME involvement

To obtain SME cooperation, the commitment required from the SME should be limited and clearly defined. In the context of the “Design Build Project” course which extends over a period of 16 weeks, the involvement of the SME is:

1. The faculty member visits the SME before the semester start and establishes relevant application areas of interest.
2. The SME representative presents their company to the students at the semester start.
3. The SME representative attends and provides immediate feedback to the students at:
 - i. A conceive/design seminar where the students present their business model, requirements and prototypes.
 - ii. A design/build seminar where the students present their design and preliminary implementation.
 - iii. A final poster session where the final product is presented.

Each seminar has a duration of approximately four hours.

