

**EXAMENSARBETE** Return on investment and maintenance in a mobile test automation implementation**STUDENT** Martin H Tomičić**HANDLEDARE** Masoumeh Taromirad (LTH), Niklas Kenéz (Bosch SensorTec),**EXAMINATOR** Per Runeson (LTH)

# Test automation benefits and concerns in a mobile setting

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Software testing is a way to check that a program works as intended; it is, however, time-consuming. So is it worth investing in automating the tests for a mobile application? My findings say yes! Some benefits include 40% decrease in time spent on carrying out tests, released resources, and increased confidence in the code.

Software testing is a challenging task no matter the project and can take up considerable resources. Automating the testing is a solution many turns toward in the industry. While automating the testing has its boons, the implementation can be costly, and the solution needs to be updated whenever new features are added. At Bosch SensorTec in Lund, they develop physical sensors for different uses, such as fitness tracking, and mobile applications to pair them with. One of these applications has outgrown its scope, and the current manual testing of the application has grown cumbersome and resource-draining. Bosch wanted an automated solution to lessen the testers' load to address this. However, they had concerns regarding the maintenance of the implementation of the solution and the possibility of a return on investment.

Results of this thesis, carried out at Bosch SensorTec and on one of their applications, as well as research into mobile automation testing, include:

- An analysis of the current state of testing in the project and what concerns the team members have regarding automated tests. Developers saw few issues, while the testers were wary about the costs, possible maintenance,

and relying too much on only the automated tests to say that the application works as it should.

- A list of requirements the solution needs to follow in granting as much benefit to Bosch and the team as possible.
- A validation of the solution presents an (on average) 40% reduced execution time of the testing, resources being released within the team, and increased confidence in the code.
- An analysis of the maintenance of the automated tests, a presentation on different types of test cases and their possible maintenance, and describing some preventative measures to lessen the time spent on correcting tests.

By collecting data on different versions of the application for the validation, a critical fault was found in the latest version that inhibited a main feature of the application. This had not been detected yet and shows one of the considerable benefits of using an automated tests for regression testing, which is to test your already existing code base whenever something is changed, to ensure nothing has been broken.