TALLINN UNIVERSITY OF TECHNOLOGY
Faculty of Information Technology
Department of Computer Engineering

Denis Konstantinov 111615 IASM

Embedded service oriented microcontroller architecture.

Extensible client-server communication architecture for small devices

Master thesis

Supervisor: Peeter Elervee
Associate Professor at the Department of Computer Engineering / Ph.D., Dipl.Eng.

Tallinn 2013

Author's Declaration

This work is composed by myself independently. All other authors' works, essential states from literary sources and facts from other origins, which were used during the composition of this work, are referenced.

Signature of candidate: Date:

Acronyms

ASIC Application-specific integrated circuit. 5

Annotation

Current work introduces conceptual approaches for implementing an extensible service oriented client-server application on a small microcontroller. This is a general-purpose transport and hardware independent embedded server that uses remote procedure calls as primary communication protocol. This server looks like remote service that could provide defined functions to the client. ...

Annotatsioon

Annotatsioon eesti keeles

Contents

1 Introduction

1.1 Outline

1.2 Contributions

This is a test of acronyms ASIC[1]

This is a test of code listings

```java
32  public Response getResponse(long timeout) throws InterruptedException {
33      synchronized (lock) {
34          if (response != null) {
35              return response;
36          }
37
38          lock.wait(timeout);
39      }
40
41      reader.removeInputHandler(this);
42      return response;
43  }
44
45
46
```

Listing 1: Example of a listing.

At first here will be lots of words about this cruel world and how it was changed in resent years.
Speech about reusable components.
Speech about small mobile devices that are everywhere.
Communication.
Interaction.

---

[1]Application-specific integrated circuit

2 Preliminaries

2.1 Service oriented architecture

2.2 Data serialization

2.2.1 JSON

2.2.2 XML

2.2.3 Others

3   System architecture

This section will introduce you a main architecture of the system.

3.1   Introduction

Here will be about coffee machine example in general

3.2   Server architecture

3.3   Client architecture

4   Implementation

Here will be implementation report.

4.1 Implementation of the embedded server

Here will be STM32 server implementation.

4.2 General purpose service library implementation

Here will be general purpose library implementation report.

4.3   Implementation of android client

Here will be android java client implementation report.

Android development   Some words about development under Android platform

5 Conclusions

5.1 Future work

List of Figures

List of Tables

References