Last Updated on 23rd July 2021

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WHO AM I ?

Applied Researcher/ Embedded Device Engineer with hands-on experience in prototyping Low Power Embedded Wireless Hardware, Device Firmware and Design for Small to Medium scale manufacturing.

EDUCATION

COCHIN UNIVERSITY (CUSAT)

2015|B.Tech in Electronics and Commn. Engg
College of Engineering, Kallooppara
First Class

HIGHER SECONDARY

2011 | Dr. ZHM School, Chry
AISSCE - 77.8/100
AISSE- 84.6/100

LINKS

Gitlab :// **akshaim**, Github:// **akshaim**
LinkedIn:// **akshaim**, Quora:// **Akshai-M**
Twitter:// **@m_akshai**

SKILLS

•Embedded Operating Systems - RTOS Class • Firmware Development • HIL Unit tests and CI/CD
• Rapid Prototyping : 3D Printers, Pick and Place, Electronics Assembly Line tools, CNC Machines
• Debugging : DSO, Logic Analysers, Network Analyser, SDR.

PROGRAMMING

Embedded C • Shell • Python
Micro-Python •AVR Assembly • C • LaTeX
Familiar:
LUA • Chisel (Scala) • C++ • Arduino IDE
Tools:
Git, KiCAD, Inkscape, Ngspice

LANGUAGE PROFICIENCY

- Malayalam - Native
- English - Fluent
- German - Basic (A1)
- Tamil - Basic
- Hindi - Basic

PERSONAL STATUS

- Citizenship - Indian
- Working Permit - Yes (Blaue Karte EU)
- Other travel permits - US B1/B2 Visa
- Date of Birth - 09 April 1993
- Marital status - Single

EXPERIENCE - 6 YEARS

FREIE UNIVERSITÄT BERLIN | Research Engineer

Mar 2020 - Current | Berlin, Germany

- RIOT-OS (Code Maintainer) : RIOT is a real-time multi-threading operating system that runs on memory-constrained systems with a focus on low-power wireless Internet of Things devices.
- Contributed to GNRC LoRaWAN stack development, radio driver development, board ports, build system (Kconfig migration), HIL unit tests.
- Reviewed Pull Requests made by other users in Github.
- Represent RIOT team in international community meetups and workshops.
- Key outcomes: •Firmware/ Driver Development • Hardware interface Debugging (I2C, SPI, U(S)ART, CAN) • Device power profiling • HIL Testing.

ICFOSS | Senior Research Fellow

Sep 2017 - Mar 2020 | Trivandrum, India
Jun 2016 – Sep 2016 | Trivandrum, India

- Founding member of OpenIoT research group.
- Contributed to design & research on Network and Embedded System Architecture for several products especially for use in smart city project.
- Solution consultant for IoT startups incubated in Swatantra (Kerala Startup Mission) incubator.
- Lead Design & Fabrication of PCB's, Design for Manufacturing, Firmware Development for LoRaWAN Nodes.
- Initiated ExpEYES Community project. Add-on modules developed for conducting physics experiments. Now used by over 3000 schools in Kerala.
- Promoted as team lead to guide a team of fellow researchers.
- Promoted as Senior Research Fellow (Research Officer) - RISC V CoE, OpenFPGA CoE and LoRaWAN CoE.
- Key outcomes: •LoRaWAN in a Box project •ULPLoRa Platform • Type C LoRaWAN Board • Energy Harvester modules • Firmware Development using tools from ST and PlatformIO • Team management • Startups.

IIT BOMBAY | Research Assistant (FOSSEE Project)

Oct 2016 – Sep 2017 | Mumbai, India

- Contributed to OpenPLC Project, revision of hardware to a Modular Platform based on IEC 61499 enabling distributed control/system automation.
- Demonstrated Eclipse SCADA (Process visualization) along with FBRT (HMI) using 4DIAC environment.
- Worked with 4DIAC team in Fortiss/Technische Universität München to improve 4DIAC by porting FORTE run time environment to SBC's as well as contributing to documentation upstream.
- Contributed to Spokentutorials, scripting and review of ExpEYES tutorials.
- Key outcomes: •Industrial Design •International association •IEC61499 • Board bring-up.

KERALA STARTUP MISSION | Technology Innovation Fellow

Jul 2015 – Jun 2016 | Trivandrum India

- Founding team at FabLab Kerala , initiative by CBA,MIT Boston and Government of Kerala, India.
- Complete Pre-Fab academy course.
- Engineered IoT Labs. Created teaching curriculum and designed the infrastructure of the facility. The labs were deployed in 22 engineering institutes in the state.
- Lead Engineer for COWMesh Project. COWMesh was a state funded project to provide intranet based services for villages in Kerala. The project was based on network infrastructure powered using LibreMesh and Commotion.
- Key outcomes: •Rapid Protoyping •3D Printers (FDM, SLA/SLS) • CNC Machining (Wood, Metal and Polymers) • PCB Etching and Assembly • Pick and Place.

ENTREPRENEURSHIP

Founder | **MicroHOPE Foundation**
A not for profit organization promoting the use of Open Source Hardware for Learning Science.

INTERESTS

Teaching, Electronics, DIY hardware hacking Speed cubing , Percussion Instruments - Tabla, Mridangam, Blogging, Science Fiction.

REFERENCES*

Prof. Matthias Wählisch | FU Berlin
Prof. Kannan M Moudgalya | IIT Bombay
Prof. Alois Zoitl | TU Munich, JKU Austria
Dr. Jayasankar Prasad C | ICFOSS, KSUM

*References shall be made available upon request.

ACTIVITIES

Workshops/ Talks

- "LoRaWAN in a Box Workshop" LoRa Alliance, Berlin : June 11-13, 2019.
- "LoRa Demystified Workshop" GOSH, Shenzhen, China : Oct 12, 2018.
- "ULPLoRa Workshop" Open Hardware Summit, MIT Boston : Sept 27, 2018.
- "Industrial Automation and Control using FLOSS and Open Source Hardware" RMLL- LSM, Saint Etienne, France : July 01-07, 2017.
- "OSH enabled Physics" Gathering for Open Science Hardware Santiago, Chile : March 22-25, 2017.
- "OSH enabled IoT for the year 2016" FOSS Young Professionals Meet India 2016 : Jan 13, 2017.
- Workshop on "MicroPython for MicroControllers" Scipy India 2016:Dec 10, 2016.
- Workshop on "ExpEYES" Gnome Asia Summit Indonesia : May 07, 2015.
- Workshop on "MicroHOPE" RMLL Montpellier France : July 05-11 2014.
- Workshops conducted in 22 Engineering colleges as a part of IoT Lab community development programme.
- Regional workshops conducted in RRC's in association with IT@School Kerala as a part of Expeyes community development programme.

Publications

- Programmable Logic Controller: Open Source Hardware and Software for Massive Training : IECON18 , 2018 IEEE.
- Book on Computer interfaced experiments using ExpEYES,Malayalam - ICFOSS.
- SVASTHA: An effective solid waste management system for Thiruvalla Municipality in Android OS : GHTC-South Asia Satellite, 2013 IEEE.

Volunteering

- Technical and Certification committee, Academia WG | LoRa Alliance.
- Immediate Past Execom | Internet Society Trivandrum Chapter.
- Past Chairman | IEEE SB CE Kallooppara: 2014-15.
- Past EC Coordinator | IEEE Travancore HUB (LINK): 2013-14.
- Coordinator | NASA Space Apps Challenge Kochi : 2014.

Awards

- 2018 SiFive India Design Contest Winner for the proposal on Custom RISC-V Silicon for LoRaWAN.
- 2018 GOSH Fellow.
- 2018 Ada lovelace Fellowship.
- 2017 GOSH Fellow.
- 2014 Certificate of Appreciation | IEEE Kerala Section, NASA Space Apps.
- 2013 Third Prize | IEEE R10 (Asia-Pacific) Student Paper Contest 2013.
- 2013 Winner | IEEE SIGHT R10 Humanitarian Page Contest.

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