



Yuru Music Hackathon in India

Overview and Q&A

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SONY

To support Sony's Purpose to *"Fill the world with emotion,
through the power of creativity and technology"*

Yuru Musical Instrument Hackathon 2023

@ Bangalore
on 11th & 12th March



Purpose of Yuru Musical Instrument Hackathon

We want you to create music that you love to play and enjoy without any inhibitions



Yuru Musical Instrument Hackathon is providing an opportunity to everyone (above 18 years) to create Musical Instruments for casual music lovers to play and enjoy alone or as a group.

What is Yuru Musical instrument ?



Yuru Musical Instruments are musical instruments that anyone can easily play, as envisioned by the **World Yuru Music Association**.

Mandatory

Being able to play without prior knowledge or training in music

Desirable

Getting Better with Practice. Being able to control scale.

Who organizes the event?

Sponsored By

Sony Music entertainment Japan Inc.

Conducted By

Sony India Software Centre Pvt. Ltd.

Co-Sponsored By

Sony India Software Centre Pvt. Ltd.

Sony Semiconductor Solutions Corporation

Sony Group Corporation

IIT Madras

Awards & Recognition



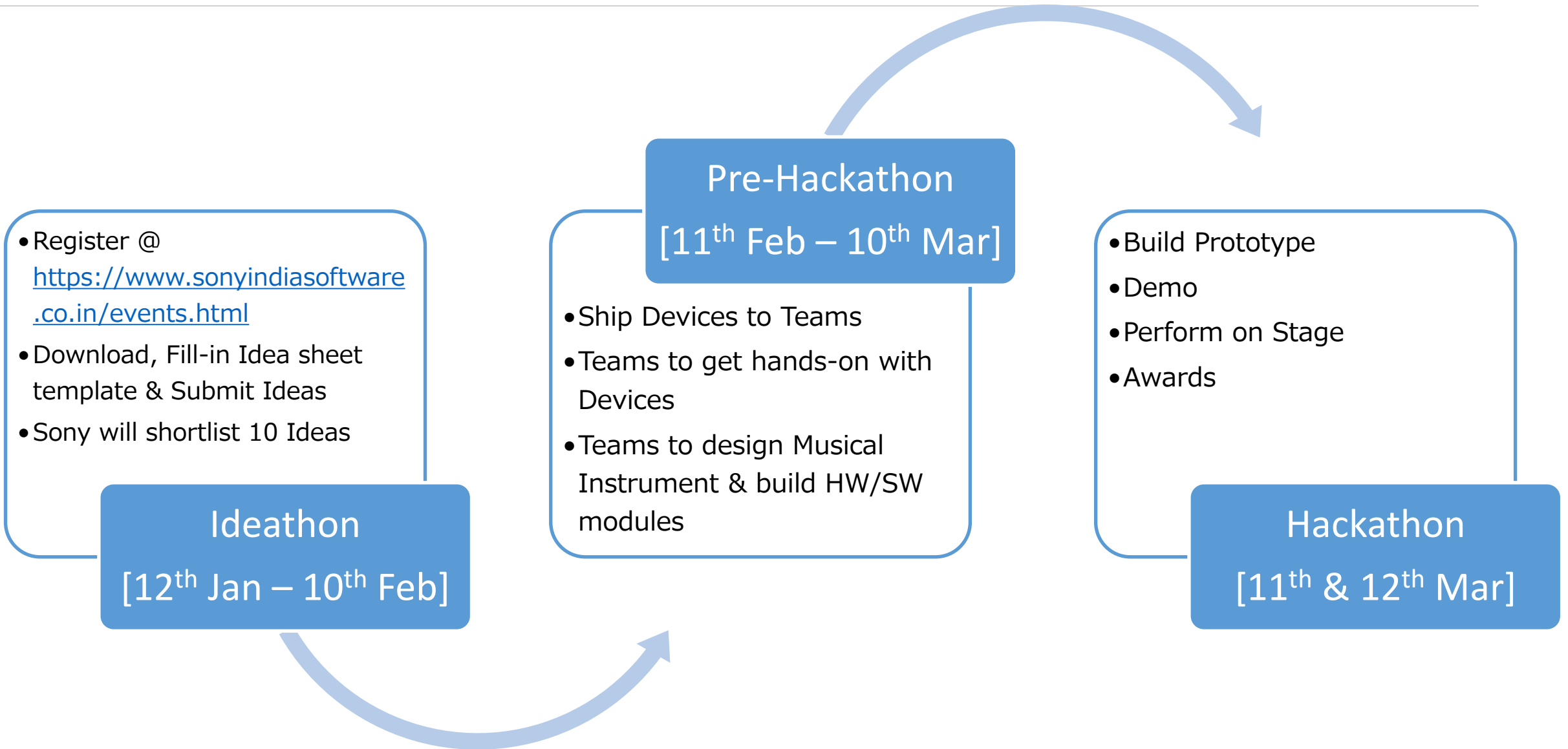

1st Prize **INR 50,000**


2nd Prize **INR 25,000**


2nd Prize **INR 25,000**

- **Special award from Guests (Sony Goods, Products, etc.)**
 - ❖ Sony Music Entertainment Japan 1 team
 - ❖ Sony Semiconductor solutions 1 team
 - ❖ Sony Group Corporation 1 1 team
 - ❖ Sony Group Corporation 2 1 team
- **Certificates and Prizes for Teams qualified for Hackathon**

Phases & Timeline



Glimpses of Past Yuru Hackathon events

Yuru Musical Instrument Hackathon was conducted in Japan

@ Tokyo in 2021

@ Osaka in 2022

Please visit <https://yurumusic.com/#instruments> to watch the Demo videos of Musical Instruments created by the Participants

Snapshots of Musical Instruments from past events

Ultra light saxophone

⇒ A saxophone that anyone can play without going out of tune.

Instrument concept

- Anyone can play it easily
- Extend your voice to a saxophone sound

Sensor

- Pitch detection with microphone



Harmony Flag

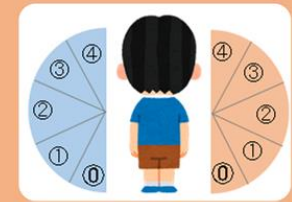
⇒ This instrument plays chords by posing with arms outstretched to the left and right, like a sailor's flag signal

Instrument concept

- Anyone can play it easily
- Exercise to music
- Fancy performances are fun to watch.

Sensor

- IMU Sensor + Spresense



Touch the sound

⇒ Play by changing the position of the ball on the square board.

Instrument concept

- Anyone can play it easily
- Change the sound and type of sound played depending on the placement of the ball.

Sensor

- Camera detects multiple ball positions



TYPE Player

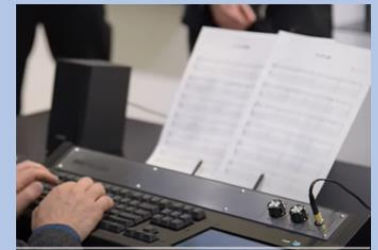
⇒ "Type Player" reinvents the computer keyboard, which we can type on the keys, will turn into a musical instrument.

Instrument concept

- User can read music notation as strings of letters instead of staves
- To all of you who work every day, why don't you become a musician today?

Sensor

- Keyboard, PC



Snapshots of Musical Instruments from past events

rock, paper, scissors

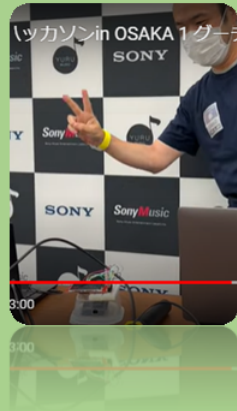
⇒ Playing Chords in rock, paper, scissors.

Instrument concept

- Anyone can play it easily
- Detects hand shape and changes the music tone

Sensor

- Camera detects hand shape



Loose flamenco

⇒ Shoes and castanets for flamenco.

Instrument concept

- [Shoes]
 - Anyone can easily make the sound of shoes anywhere.
- [Castanets]
 - Anyone can show off rolls (high-speed continuous hits).

Sensor

- Detect hand and foot movements with IMU



Others

<https://av.watch.impress.co.jp/docs/series/dal/1369750.html>

2021 Tokyo

<https://av.watch.impress.co.jp/docs/series/dal/1428991.html>

2022 Osaka

Visual programming + Toio + Sheet → Box with sound



Mac App + Pressure Sensor → Make music by moving on the giant ball



SPRESENSE + Sensor → Umbrella Code player



How to build Yuru Musical Instrument



HW Devices

Sony provides these HW to Teams shortlisted for Hackathon – To be returned after the event

Spresense



toio



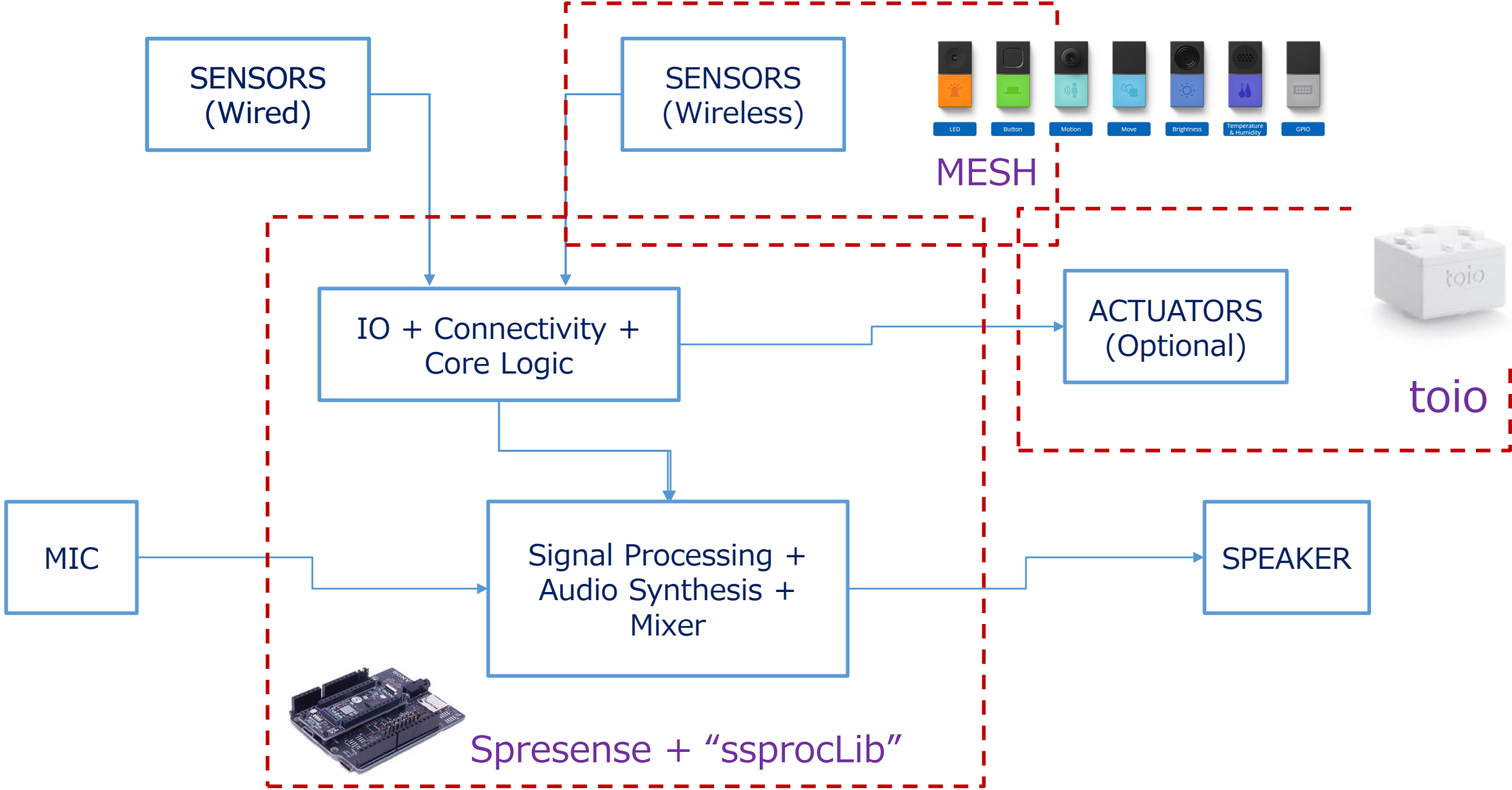
Participants are expected to arrange the additional HW modules/components.

MESH

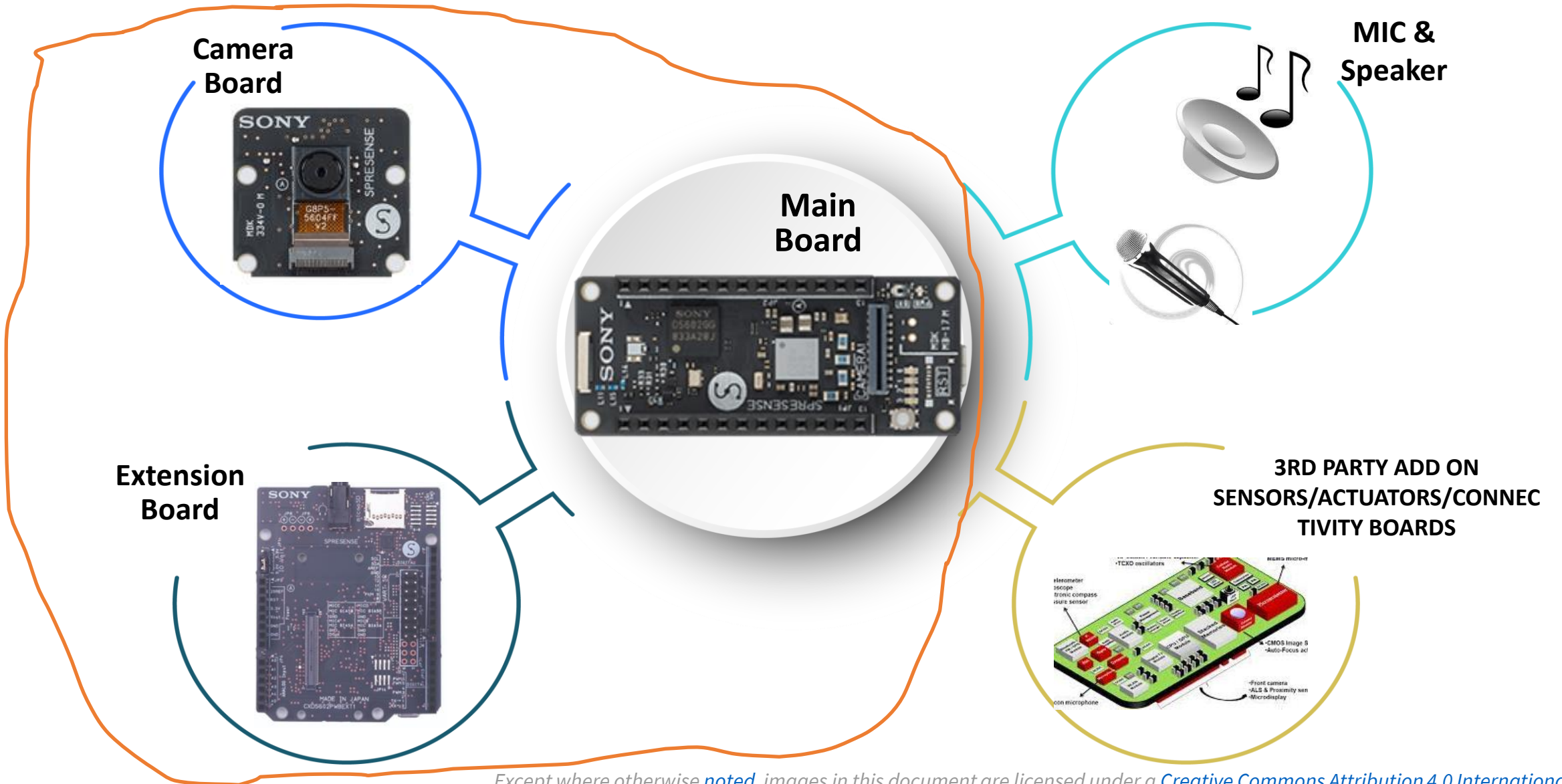


Any other HW modules/components of your choice – Open Source, Custom, 3rd Party etc.

Musical Instrument – Prototype Skeleton

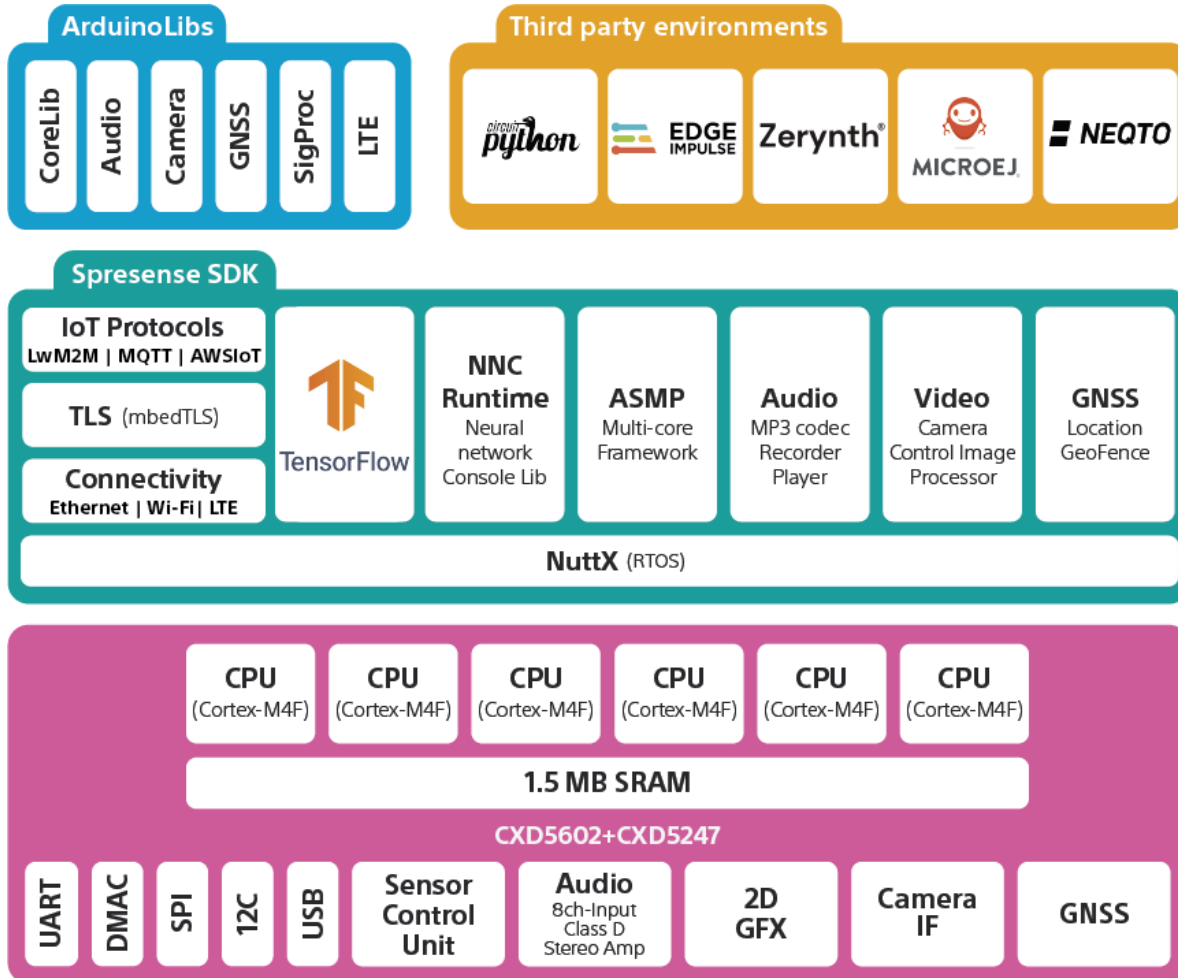
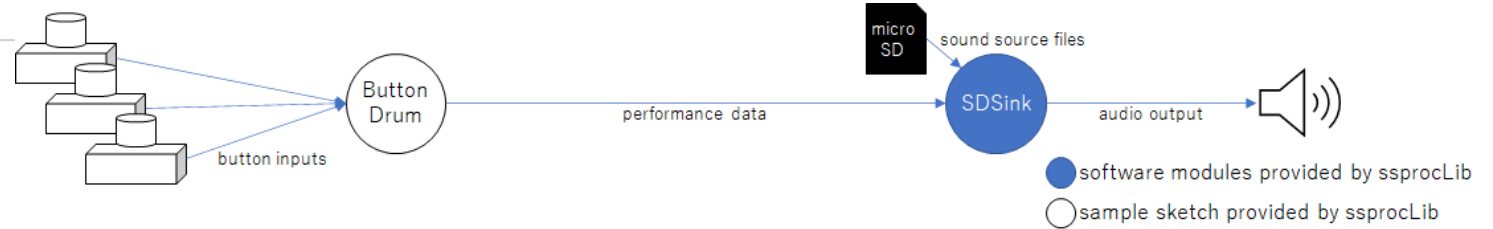


Spresense – HW Modules/Interfaces



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Spresense – SW Stack



- Sony provides **ssprocLib** (Sound Signal Processing Library for Spresense) for synthesizing MIDI tones

- Sony recommends Arduino IDE to develop and deploy SW on Spresense for the Yuru Musical Instrument Hackathon

Glance at "MESH"

Unlimited inspiration = infinite creations

<https://meshprj.com/en/>



Wireless IoT Blocks



Visual coding app for iOS and Android



Customizable settings



GPIO to interface with Arduino and Raspberry Pi



300+ apps and device integrations via IFTTT



Bluetooth low energy



SDK for custom code, apps and services



Rechargeable, durable and compact

Glance at “toio”

Create, play, and inspire.

As you play with enthusiasm, the cycle is born naturally.

<https://www.sony.com/en/SonyInfo/design/stories/toio/>



A robot toy with absolute position detection and its application methods that enable high-precision movement control and cooperative control of multiple robots with a simple configuration and realized new physical interactions.

Can communicate via Bluetooth® standard Ver. 4.2

toio Core Cube Technical Specifications

For developers and creators who want to use a small cube-shaped robot that can control absolute position for more authentic work creation and research and development, the technical specifications of "toio Core Cube" are available.

toio Core Cube Technical Specifications

toio.js

This is a library for Node.js for controlling the "toio core cube" in JavaScript. Complex controls that are difficult to do with visual programming can be easily programmed with JavaScript.

JavaScript library "toio.js"

toio SDK for Unity

This is a development environment for controlling the "toio Core Cube" with the game engine "Unity". This makes it easy to develop mobile apps and games using the toio Core Cube.

toio blog

Download "toio SDK for Unity"

※"toio SDK for Unity" is developed and provided by Monikatron Corporation.



Inviting everyone to take part in Yuru Musical Instrument Hackathon India !

For more Info & Registration, please visit <https://www.sonyindiasoftware.co.in/events.html>

Please send your ideas to Ideathon-YuruIndia-2023@sony.com

For Support Queries, please write to Support-YuruIndia-2023@sony.com

Demos

Demo of Sound Signal Processing Library on Spresense board



Button Drum



Voice Pitch
Changer



FM
Synthesizer

Q & A

Thank you !