M-RAM

Musical Room Ambience Monitor

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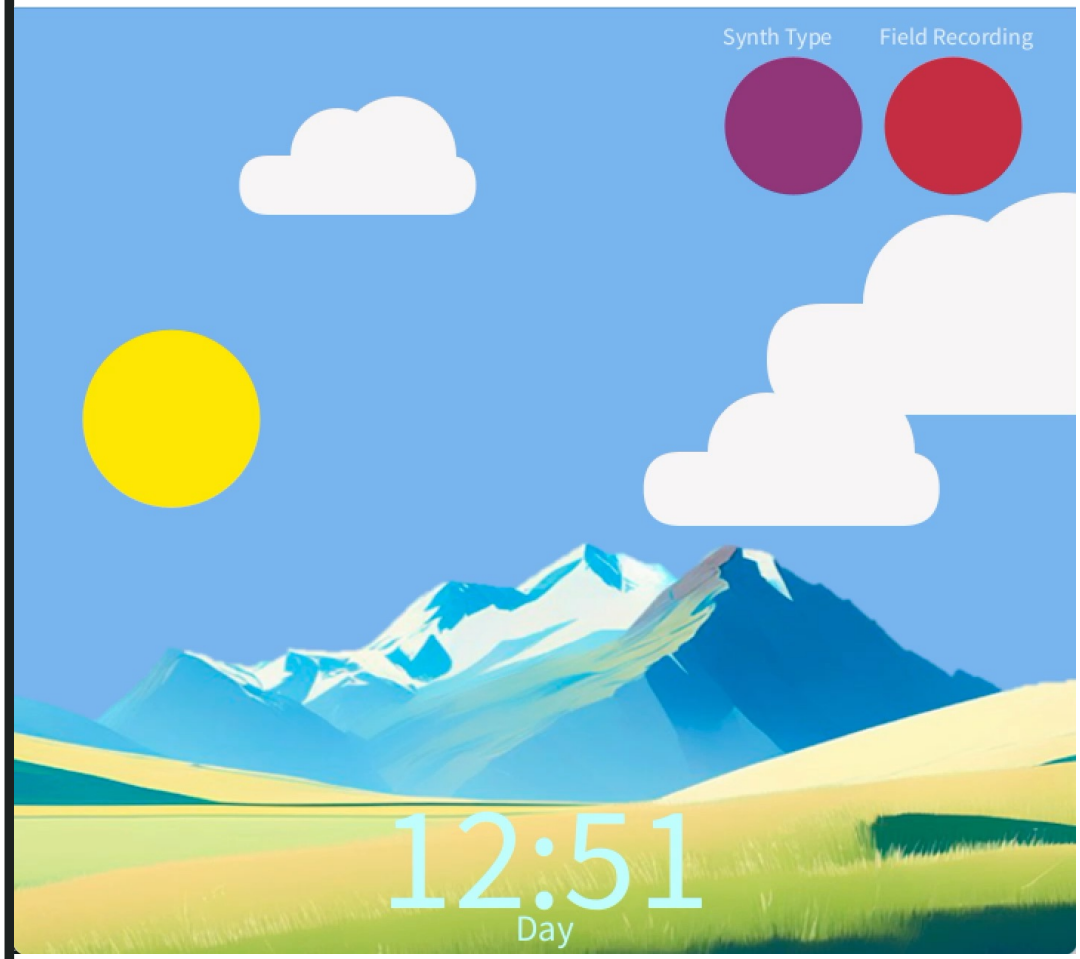
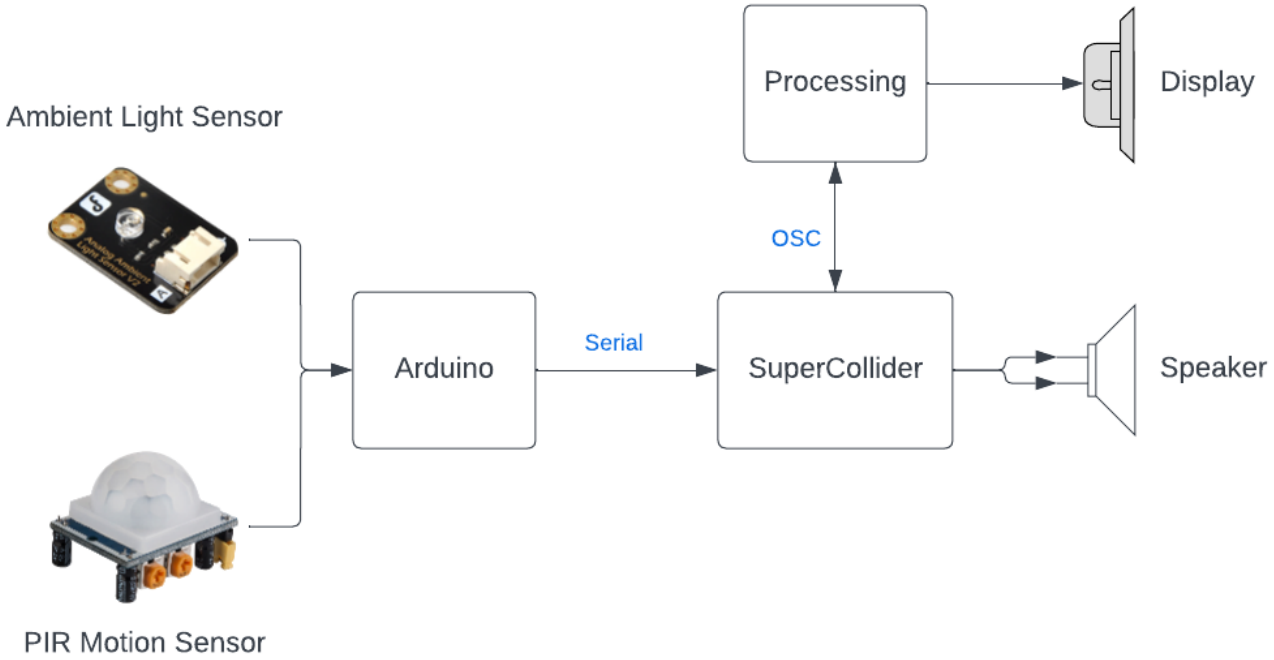
M-RAM Concept

- A system designed to add ambient sounds to a bedroom
- Inspired by Brian Eno's "Ambient 1: Music for Airports"
- Provide suitable ambience through music and field recordings
- Reacting to time of day, ambient light and motion detection



M-RAM Block Diagram



SuperCollider

7 Synths with **SynthDefs**:

1. Smooth synth,
2. Lead synth,
3. Relaxing pad synth,
4. Bass synth,
5. Hihat,
6. Buffer player synth
7. White noise synth

```
// Create the actual SynthDefs for each instrument
SynthDef(\smooth, { arg freq = 440, amp = 0.1, att = 0.1, rel = 2, lofreq = 1000, hifreq = 3000, pan = 1;
    var env, snd;
    env = Env.perc(
        attackTime: att,
        releaseTime: rel,
        level: amp
    ).kr(doneAction: 2);
    snd = Saw.ar(freq: freq * [0.99, 1, 1.001, 1.008], mul: env);
    snd = LPF.ar(
        in: snd,
        freq: LFNoise2.kr(1).range(lofreq, hifreq)
    );
    snd = Splay.ar(snd);
    Out.ar(0, Pan2.ar(snd,pan));
}).add;
```

Pbindefs to play

Incrementally change the Patterns and sequences

```
Pbindef(\p_smooth,
    \instrument, \smooth,
    \amp, 0.4,
    \dur, Prand([1/4],inf),
    \midinote, Pshuf([60,62,64,67,69,72,74,\,\,\,\].stutter(4) + transpose, inf))
.play(t, quant:Quant.new(4,0,0));
```

Switching between the presets

Contains day time states

```
switch (~synthMode,
            0, { ~stopNig.value; ~presetSlowRep.value; 'morning'.postln;
                ~fieldRecSynth.set(\buffer_name, ~bird);
                if( (~ifFieldRec) == 0,
                {~fieldRecSynth.set(\amp, 0)},
                {~fieldRecSynth.set(\amp, 0.8)} );
            };,
            1, {~stopNig.value; 'day time'.postln;
                ~fieldRecSynth.set(\buffer_name, ~city);
                if( (~ifFieldRec) == 0,
                {~fieldRecSynth.set(\amp, 0)},
                {~fieldRecSynth.set(\amp, 0.8)} );
                if ((~ambLight>700),{~presetFastDyn.value; },
                    {~presetFastRep.value; };);
            }, // ambient sensor here, low -> repetitive, high -> dynamic},
            2, { ~stopNig.value;
                ~presetSlowDyn.value;
                ~fieldRecSynth.set(\buffer_name, ~city);
                if( (~ifFieldRec) == 0,
                {~fieldRecSynth.set(\amp, 0)},
                {~fieldRecSynth.set(\amp, 0.8)} );

            },
            3, { ~stopMorDayEve.value;
                ~presetNight.value;
                ~fieldRecSynth.set( \buffer_name, ~rain);
                if( (~ifFieldRec) == 0,
                {~fieldRecSynth.set(\amp, 0)},
                {~fieldRecSynth.set(\amp, 0.8)} );
```

```
// slow and dynamic
~presetSlowDyn = {
    var transpose;
    t.tempo_(60/60);
    transpose = [-7,-5,0].choose;

    if ( (~synthSelector == 0),
        {
    Pbindef(\p_smooth,
        \instrument, \smooth,
        \amp, 0.4,
        \dur, Prand([1/4],inf),
        \midinote, Pshuf([60,62,64,67,69,72,74,\,\,\,\].stutter(4) + transpose, inf))
    .play(t, quant:Quant.new(4,0,0));

    Pbindef(\p_lead,
        \instrument, \lead,
        \amp, 0
        ).play(t, quant:Quant.new(4,0,0));
    },
    {
    Pbindef(\p_lead,
        \instrument, \lead,
        \amp, 0.4,
        \dur, Prand([1/4],inf),
        \midinote, Pshuf([60,62,64,67,69,72,74,\,\,\,\].stutter(4) + transpose, inf))
    .play(t, quant:Quant.new(4,0,0));


    Pbindef(\p_smooth,
        \amp, 0,
        \instrument, \smooth
    ).play(t, quant:Quant.new(4,0,0));

    });
    Pbindef(\p_bass,
        \instrument, \bass,
        \amp, 0.5,
        \dur, Prand([1/4],inf),
        \midinote, Pshuf([60,62,64,67,69,72,74,\,\,\,\].stutter(4) + transpose - 12, inf))
    .play(t, quant:Quant.new(4,0,0));

    Pbindef(\p_hh,
        \type, \note,
        \instrument, \hh,
        \amp, Pshuf((~ambLight.linlin(0,1023,0.05,1.5) * [0.1,0.7,0.7,0.1]).stutter(16),inf),
        \dur, Pseq([1/4], inf),
        \rel, Pseq([0.03], inf)
    ).play(t, quant:Quant.new(4,0,0));
};
```

M-RAM Behavior

State of Day	Light Sensor	Motion Sensor	SuperCollider Behaviour	Field Recording
Morning	Mapped to hihat volume and dynamicity of the melody	Mapped to Volume	Slow Repetitive Or Slow Dynamic	Bird Song
Day	Mapped to hihat volume	Mapped to Volume	Fast Dynamic	City Scape
Evening	Mapped to hihat volume	Mapped to Volume	Slow Dynamic	City Scape
Night	Mapped to LPF	N/A	Soft Chord	Rain