iSynth

The Quest for a "Better" Music Synthesizer

Part II : Scope of work

Actors

Dola Ram

Student

Department of Electronic Systems Engineering (DESE)

Indian Institute of Science

Bangalore 560 012, India

Sirish K

Student

Electrical Communication Engineering Department (ECE)

Indian Institute of Science

Bangalore 560 012, India

Motivation #1 : Wireless connectivity

1. Why wireless ?

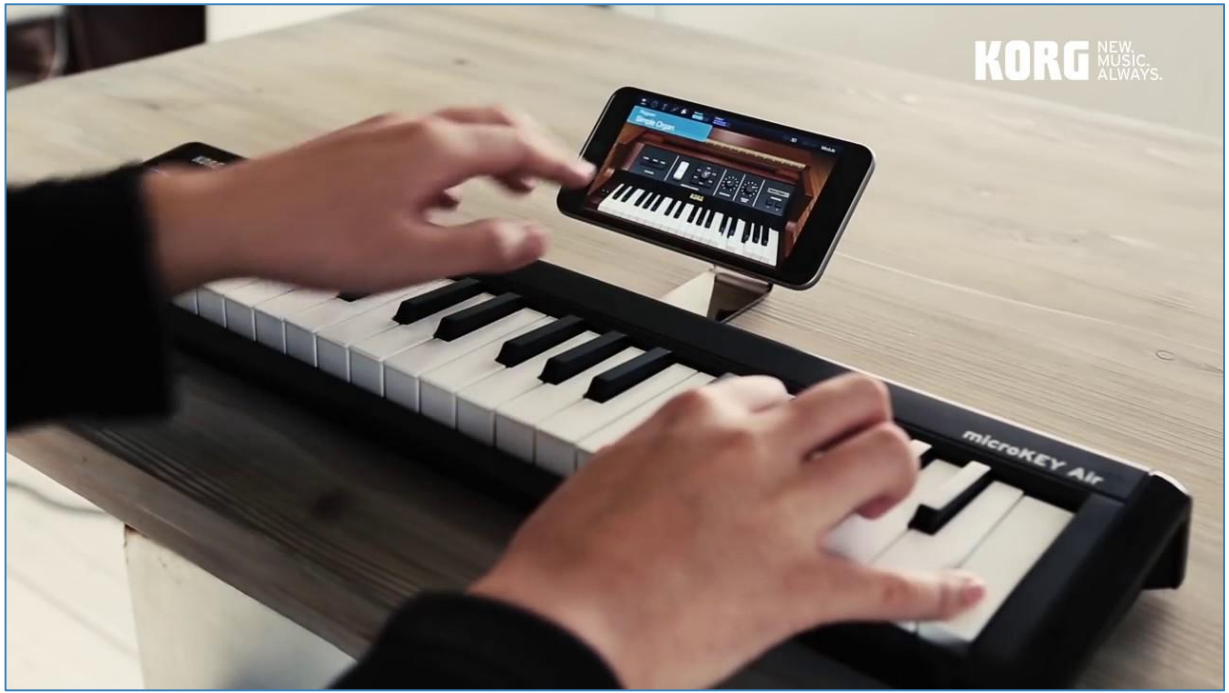
   - Keyboard manufacturers since the 60's have released many models with variation mostly in terms of software features (voice libraries, background music etc.)

   - The physical frame of the keyboard remains the same (61 or 88 keys) !
     => if you purchase a "better" model, the physical frame ends up being redundant

2. Could we decouple the physical actuation part from the sound generation part ? Yes !

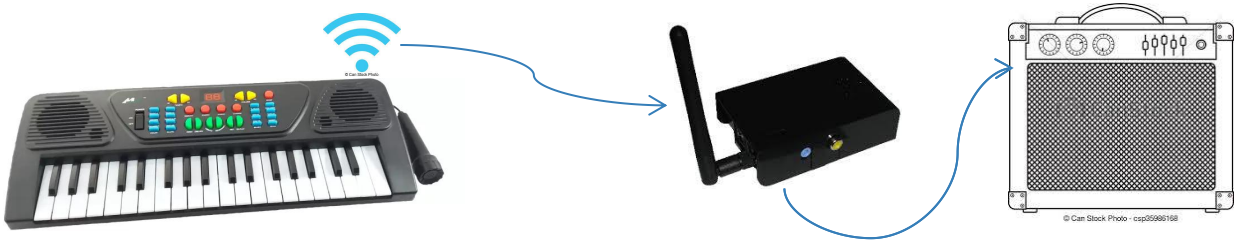
Motivation #1 : Wireless connectivity

Example : Korg Microkey Air (Bluetooth version) with iPhone

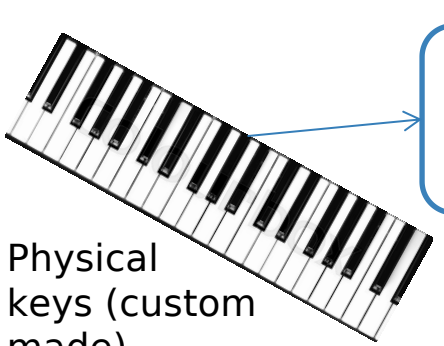


Motivation #1 : Wireless connectivity

Scope #1 : Transform a toy keyboard into a wireless one (re-invent)

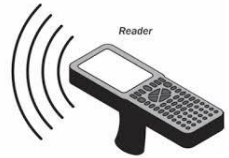


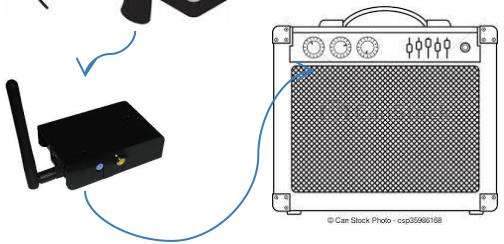
Scope #2 : Make the keyboard batteryless !



Physical keys (custom made)

RFID tag chip that supplies and communicates with external sensors



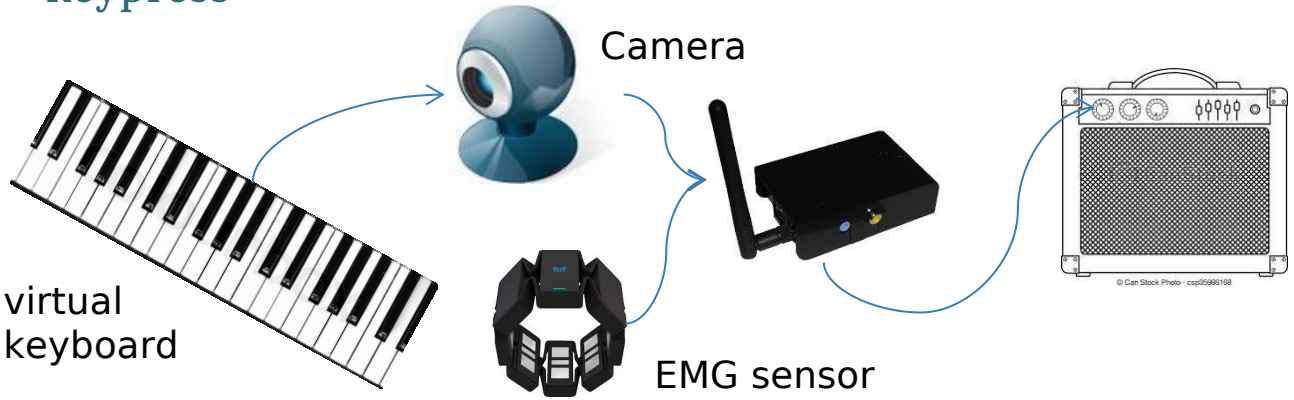


Motivation #2 : Portability factor

Scope #3 :

- Use a virtual keyboard for actuation (projected on a surface or simply printed on paper / cloth) & use a camera to detect which key has been pressed.

- Use EMG sensors to correlate muscle activity with velocity of a keypress



Choice of Scope

- Choice : Idea #3
- Print the keyboard on a sheet of paper. Use a camera to capture the video & figure out if a key has been pressed (through shadow analysis algorithm).
- Use EMG sensors to correlate muscle response with velocity of keypress.
- Use Raspberry Pi as the bootstrap base platform.
- Later, try to integrate the intelligence into a phone app and see if velocity of keypress can be determined from the video feed itself (instead of EMG sensor).

Thanks!

Any questions?

You can find us at

dolaram@iisc.ac.in

sirishk@iisc.ac.in

Credits

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