MpW sensor (Multipurpose wireless Sensor)

Backround

Every so often we run into sensing problem of getting reliable information on particular activities, such as whether the coffee pot is on or is there anyone sitting on a desk – and we do number of other trivial-sounding various sensing tasks, that lack suitable sensor tooling. As of such tool the mpw sensor will be usable component for instrumenting the sensing on various tasks.

On top of this, we have larger goal: We want to train multi-parameter environment sensor networks to do a level of recognition on activities in space, for this we need "ground truth" data – that is, reliable data on actual events to act as labels for neural network training.

What is ready

We got an infrastructure
- Designed for receiving BT adverts
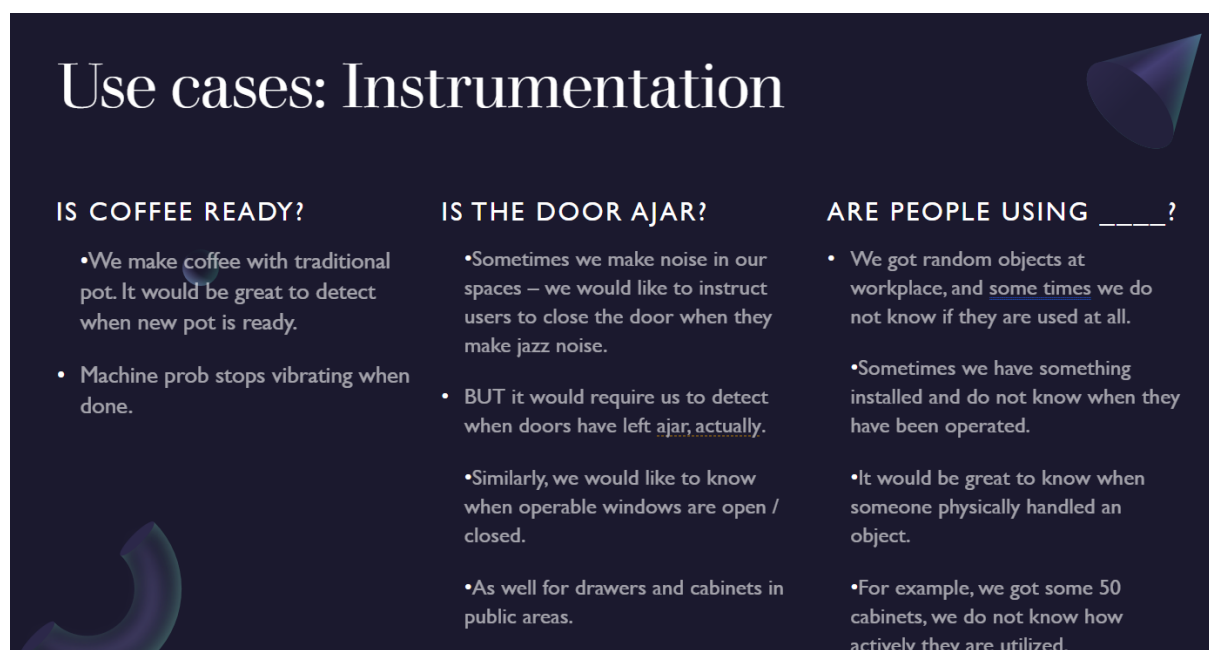- Cloud tool for reporting, visualization etc

Your task

We want to know what is happening in offices and public places
Make us a sensor that is
- Battery operated and/or energy harvesting
- Sends events through Bluetooth adverts (we have light spec for this)
- Compact (approx. size of match box)
- Actual sensor palette (gyro, accelometer ……– use what you like depending on your application.
- May have a display, speaker etc. as an extra

Some **non-limiting examples of the sensor use cases**:

Use cases: Instrumentation

IS COFFEE READY?

- We make coffee with traditional pot. It would be great to detect when new pot is ready.

- Machine prob stops vibrating when done.

IS THE DOOR AJAR?

- Sometimes we make noise in our spaces – we would like to instruct users to close the door when they make jazz noise.

- BUT it would require us to detect when doors have left ajar, actually.

- Similarly, we would like to know when operable windows are open / closed.

- As well for drawers and cabinets in public areas.

ARE PEOPLE USING ____?

- We got random objects at workplace, and some times we do not know if they are used at all.

- Sometimes we have something installed and do not know when they have been operated.

- It would be great to know when someone physically handled an object.

- For example, we got some 50 cabinets, we do not know how actively they are utilized.

Use cases: Labeling

CHAIRS

- We instrument set of mpw sensors to space, onto chairs, with embedded environment sensors.

- We collect time stamped data from mpw and environment sensors, and use mpw events as labels for recognizing activity.

- We teach a nn to draw conclusions barely with environment sensors alone.

- We compare results

WINDOWS & DOORS

- We install mpw sensors to windows and doors into space with embedded env sensors.

- We collect data on events + environmental values

- We teach nn to draw conclusions on whether windows & doors are open or closed

- Comparison on results

SPECIFIC MACHINERY

- We install mpw sensors to machinery into space with embedded env sensors

- Data collection on events + env values

- NN teaching

- Comparison

Best Regards

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