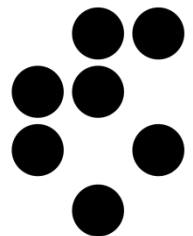




# Towards affordable Mobile Crowd Sensing device

dr. Marko Pavlin, Gal Pavlin



# Crowd sensing

- Large group of individuals collect sensor data from sensor-equipped devices
- Groups of crowd sensing:
  - Environmental
  - Infrastructure
  - Social sensing
- Mobile crowd sensing uses mobile devices

# Typical problems with existing mobile crowd sensing devices

- Lack of affordable, almost disposable device
- Noisy data
- Lack of useful and effective feedback
- Example: a mobile phone is in a pocket
  - Head tracking not possible
  - Illumination sensor covered

# Our MCS device

- Mounted in popular sunglasses frame
- Cost efficient
- Senses:
  - Head movements
  - Light
  - Sound
- Bluetooth and GPS expandable
- Can display messages
- Can send vibrating alerts

# Implementation



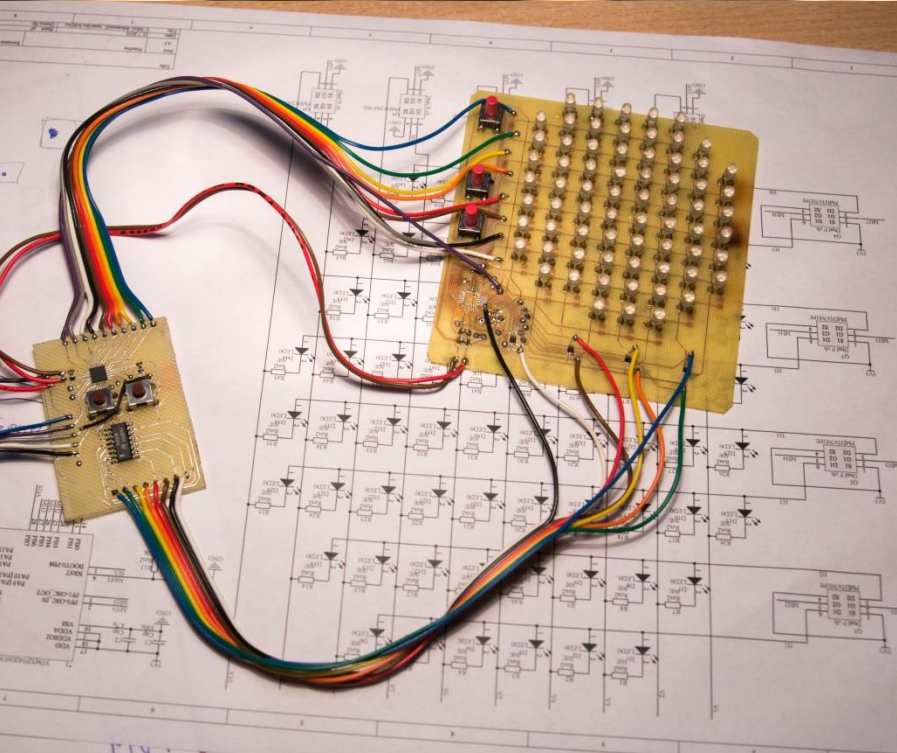
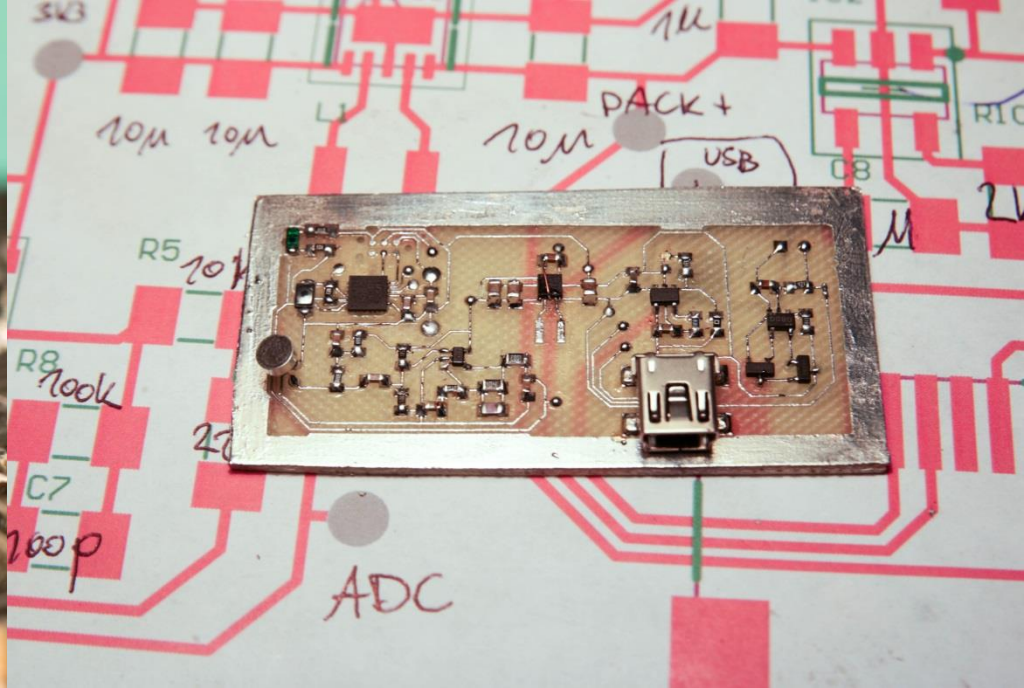
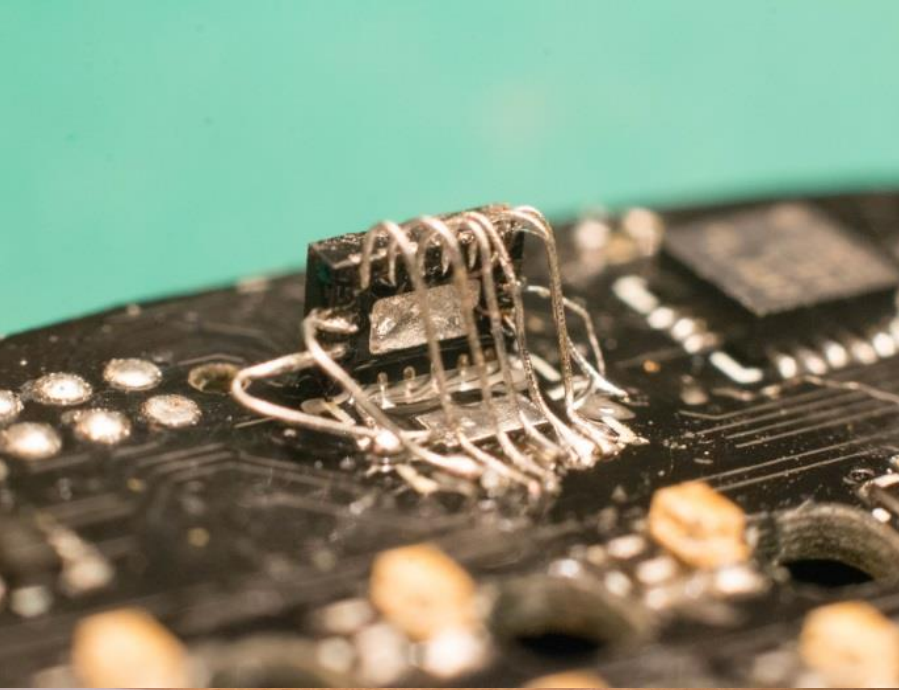
- Divided in two modules (left & right „lens“)
- Both modules communicate
- Distributed peripherals
- External battery inside the frame

# Preliminary evaluation

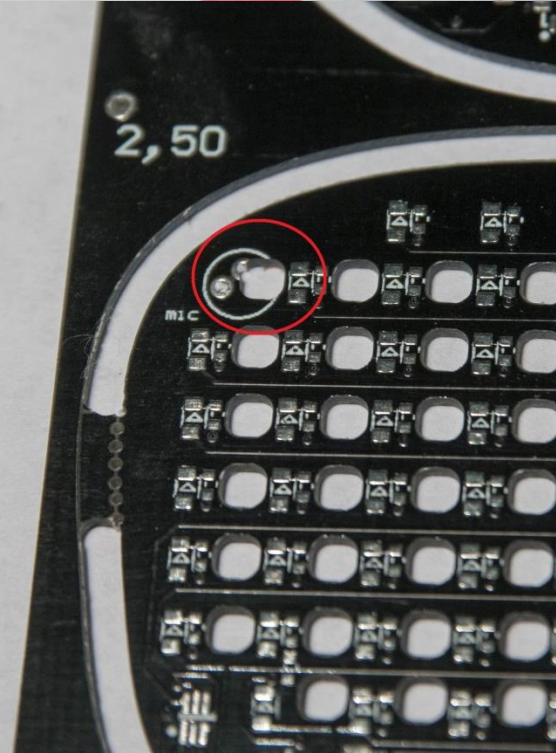
Achieved goals	Future goals
10x8 LED display	Vibrating alert
Light sensing	External GPS
Sound sensing	External Bluetooth
Acceleration sensing	USB communication
USB charging	

- First prototype has few design mistakes
- Second prototype is being manufactured





HOLE NOT IN DESIGN



# Conclusion

- Most initial goals achieved
- In search for application
- Possible applications:
  - Crowd sensing at concerts
  - Displaying messages for deaf(-mute) people