# SMART ACTIVITY AWARE LIGHTING USING PASSIVE IR AND AUDIO SENSING

**SensiML** ™
AI Sensor Algorithms
for the Extreme Edge

## OVERVIEW

SensiML AI sensing algorithms can transform raw signal data from passive IR and microphone sensors into accurate contextual insight as needed to drive a variety of smart-building use cases.  Using local processing directly on the sensor microcontroller, SensiML has existing proven algorithms that can detect real-time activity including:

- Room occupancy count
- Ingress / egress events
- Activity classification (i.e. walking, sitting, typing)
- Frustration-free smart lighting control
- Automated janitorial service calls
- Conference room scheduling

SensiML has both the tools to empower developers to build and support powerful edge AI algorithms in their products directly and the experience in applying its edge AI algorithm development tools to smart lighting and building control applications.



## SensiML SOLUTION
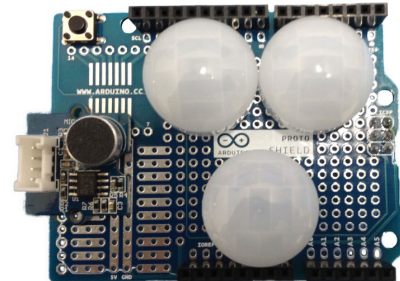
SensiML Analytics Toolkit

- Most comprehensive AI tool available for IoT edge devices
- No AI expertise required to use
- Binary, library, and source code AI algorithm output options
- Data Capture Lab: Easy, automated data collection & labeling
- Analytics Studio: Auto firmware creation from labeled data
- TestApp: AI model validation testing on target hardware
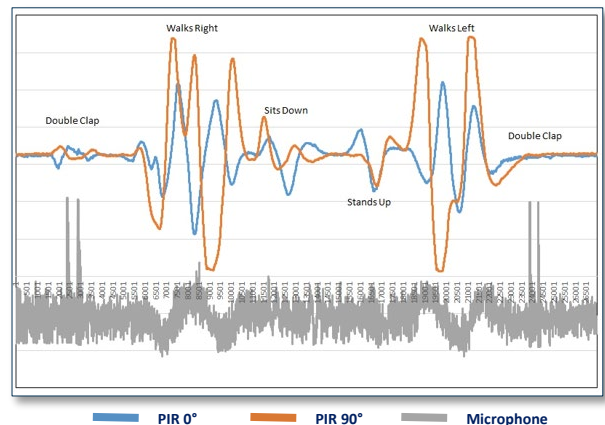
SensiML Knowledge Pack

- Resulting code generated from SensiML Analytics Toolkit
- Extremely compact code: Kilobytes not megabytes
- Data privacy assured through local processing, no raw audio or sensor data to the cloud
- Support for Arm Cortex-M/A, x86, ARC architectures

SensiML Datasets and Custom Engineering Support

- Existing datasets and modeling in smart lighting applications
- Fast time-to-market from expertise and prior projects
- Knowledgeable embedded IoT data science team

*https://sensiml.com/solutions/commercial/*



*PIR/Audio protoboard used in capture of dynamic signal data for ML classification of smart lighting / BAC events.*



| PIR 0° | PIR 90° | Microphone |

*Raw PIR and microphone signal post-filtering as input to the SensiML Knowledge Pack firmware. Machine learning recognition algorithm is used for classification of activity based on learned signals patterns processed in the SensiML algorithm firmware.*

**Additional Information**
For further information on SensiML software, services, and datasets, please visit us online at https://sensiml.com or contact us  via email at info@sensiml.com