# Indoor Positioning Systems Based on Visible Light Communication: State of the Art

## Introduction

For outdoor scenarios, GPS is used extensively. However the positioning accuracy is several meters which is unaccaptably large for indoor scenarios. Outdoor positioning tech thus cannot be used indoors.

Two features make light available for positioning:

1. The light strength varies according to differenet light sources, which can be readily detected by light sensors embedded
2. The light strength is stable at different times of a day, avoiding site-survey and database maintenance.

* Received Light Strenght of the light source can be used for localization

VLC-based IPS advantages:

* Can be used in RF sensitive areas like hospitals…
* LED offers a narrow beamwidth: more precise AOA information
* VLC has little influence from multipath interference (primary energy comes from line of sight link)
* Can be installed inexpensively since they utilize existing lightingsystems.
* Higher precision than traditional positioning