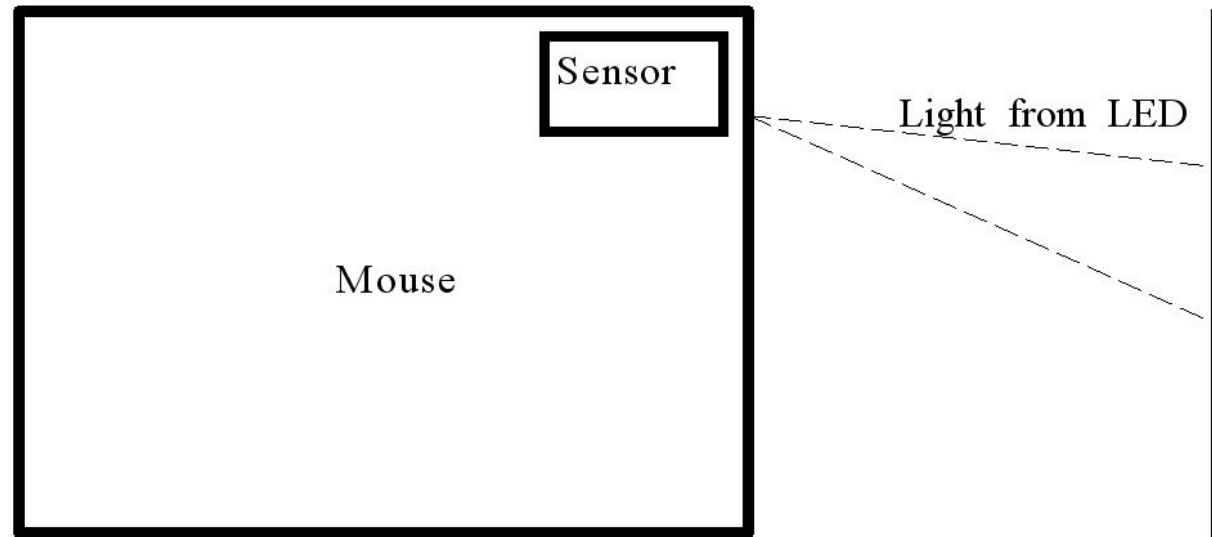


McGuinn's sensors

Duncan Louttit MINOS 2012

- Is there a wall there?
- How far am I from the correct distance?

Wall detector



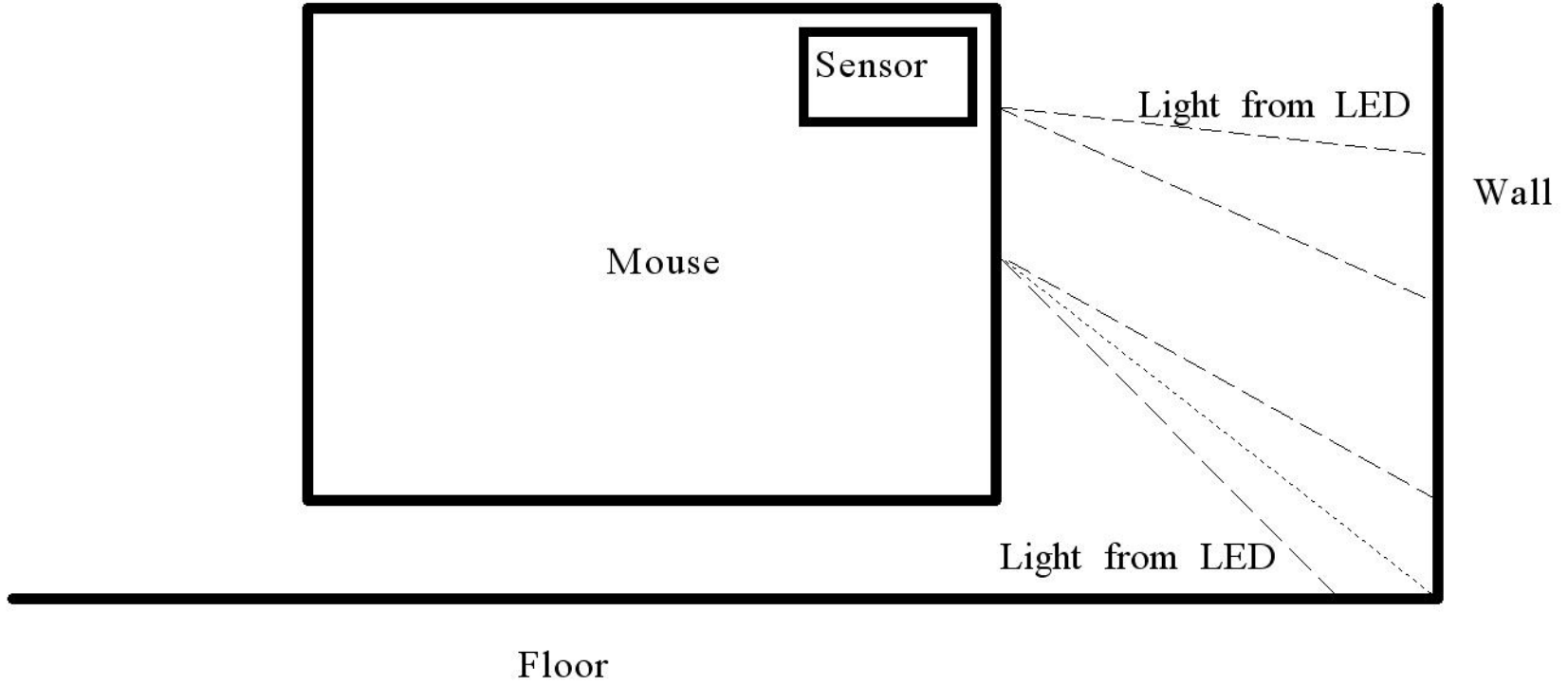
Mouse

Light from LED

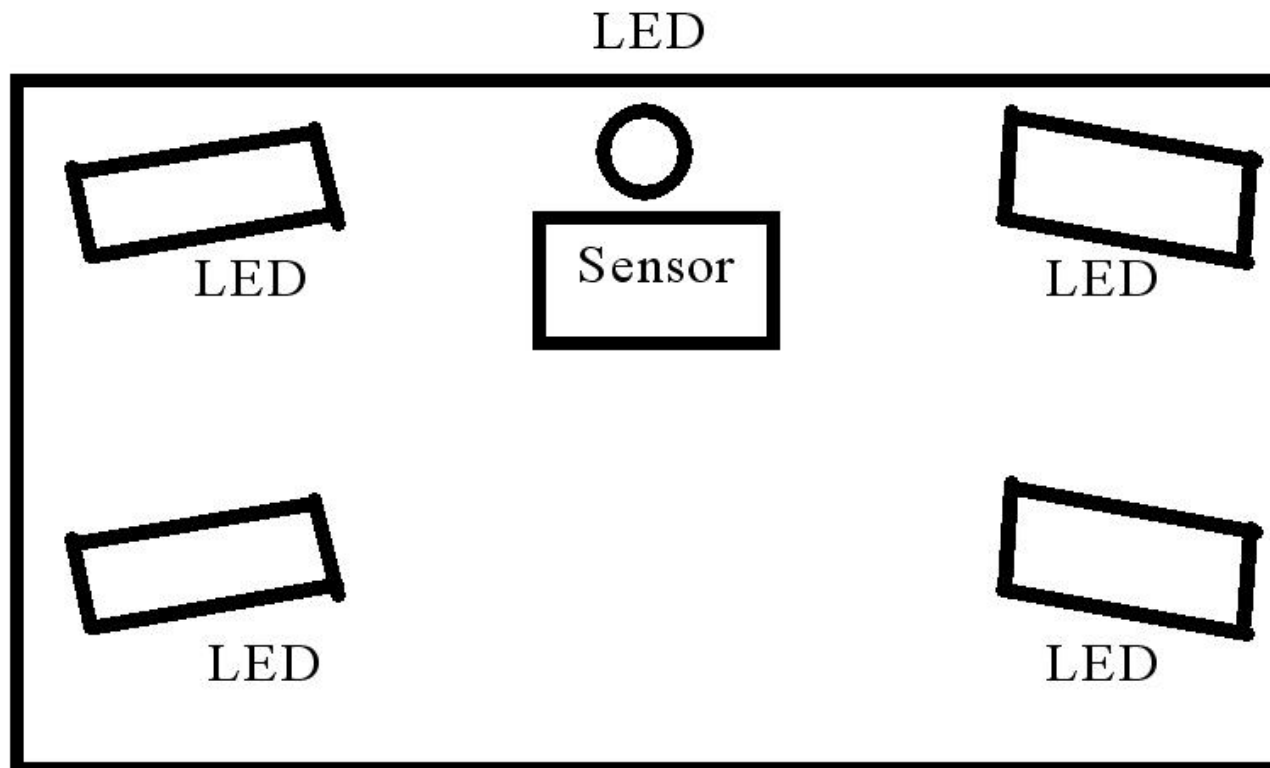
Wall

Floor

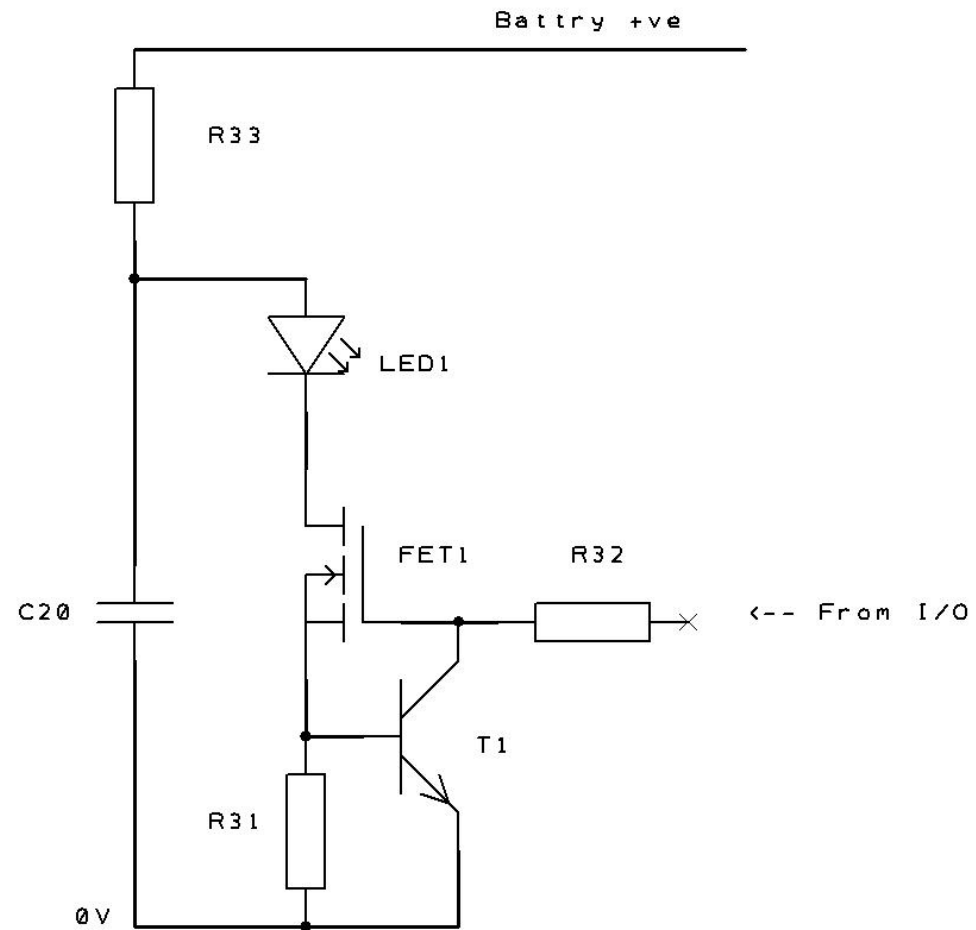
Wall detector + Distance sensor



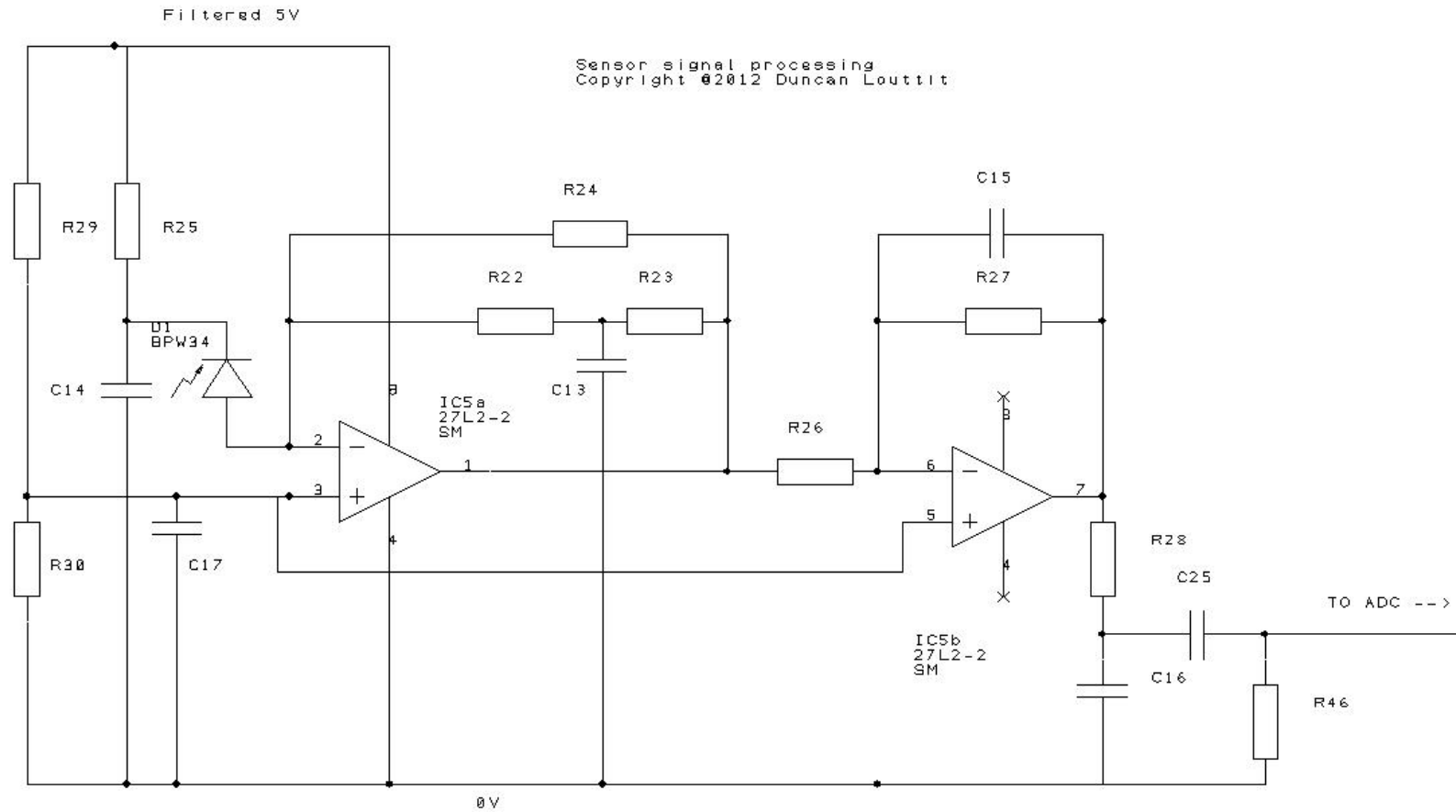
General arrangement



LED drivers



Sensor signal conditioning



Limitations

- It entirely relies on the analogue filtering for ambient suppression. Narrow angle phototransistors see less ambient.
- The gain of the error system depends on the reflectivity of the walls.
- The system is also non-linear because of the shape of the LED's light spot.

Next version

- Will have better analogue filtering and operate with a shorter light pulse.
- Will have better software ambient suppression and better decision making.
- May have slots to control the shape of the light pattern.
- May have improved linearisation and reflectivity compensation software.