## Stretch Tasks

**Community Noticeboard**

The community want a noticeboard on the streetlight where they can post about lost pets, local events and community groups.

* People will create a notice at home, send it for approval and then have it displayed
* Design the system using a flowchart
* Connect your micro:bit to a monitor to begin creating the noticeboard

**Dog Deterrent**

Some owners allow their dogs to urinate on lamp posts. The council would like to deter them.

* The sign needs to detect moisture from the dog and then frighten it, so it does not want to come back
* Use a moisture sensor to detect the dog
* Use the built in speaker to make a noise
* Find out about sounds that dogs can hear that humans cannot

**Police Interceptors**

At the scene of an accident or incident, the police would like to turn up the streetlight.

* The police officer will be able to turn up the streetlight using a phone app
* Find the micro:bit app on the app store
* Pair the phone to the micro:bit using Bluetooth

**Security Light**

Local people have asked for a help button so that they feel safer walking at night.

* The help button will instantly set the light to maximum and an alarm will sound.
* A radio signal is sent to alert the control room.
* Use Buttons A and B to prompt different events
* Can you think of other ways streetlights could help people feel safer at night?

**Bin Day**

Local people have asked for the streetlight to remind them when to put their bins out.

* The system needs to tell them which colored bin or bins to put out
* The normal bin day may change when there is a bank holiday
* Find the website that has a bin calendar for your area
* Create different colored light to match the bin colors

**Freezing Conditions**

The transport services need to know when the temperature has fallen below zero, so that they can grit the streets and pavements.

* The system needs to detect when the temperature has fallen below zero
* The streetlight can show a warning picture
* Create a warning icon for the light to show
* Use a fridge to test your final system

## **Moon Tracker**

## The moonlight can cast shadows. The light could move with the moon so that it is always illuminating the other side, so minimizing shadows.

## The moon rises in the east and sets in the west.

## Learn how to use the servo with the micro:bit to create a 180 degree turn

## Use the compass sensor to set the direction

## **Noise Pollution**

A number of residents have expressed concern over noise levels in an evening. Use the micro:bit to measure noise levels after dark.

* Use the built-in light sensor to detect when it is dusk
* After dusk use the built-in microphone to measure noise levels and output these on a graph on the built in LED screen