Stretch tasks – 1 point for each additional task completed

Community notice board

The community want a notice board on the street light, 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 flow chart
- Connect your micro:bit to a display to create 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 sensor to detect the dog
- Connect a speaker to create 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 make the street light as bright as possible.

- The police officer will be able to turn up the street light 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 the A and B buttons 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 coloured 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 messages to match the bin colours

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 street light can show a warning picture
- Create a warning icon for the light to show

Festival!

The mayor want the street lights to play a song during the cities festival.

- The system needs to play a song through a speaker
- Some residents may complain about the noise design a way to minimise the disruption
- The mayor loves the nyan cat meme

Science!

- Local environmental scientists want to study how th air pressure, humidity and temperature change throughout the day. Create a program that would allow scientist to get this data from the street light.
- The system must give the data as a decimal

Can you hear that?

The mayor wants the lights to turn on if there is a loud noise (we will use a clap to simulate a loud noise).

- Create a system where the light turns on at full power when a clap is sensed
- This should only trigger the light for a clap and not for any ambient noise

Oh no, I have fallen over

The council need to know if a streetlight has been knocked or blown over. Create a program that transmits a radio message of "Help I have fallen I am from <school name>".

- The program must transmit on radio group 2
- The program must transmit a string "Help I have fallen I am from *<school name>*"