



Highly Commended

Programming, Apps &  
Robotics  
Year 5-6

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# Smart Crossing



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# Story of the smart crossing

I got the idea of the smart crossing when I was a crossing monitor. I noticed that every day that some cars speed on the road and some people might not notice that the car is coming so they could get hit and get injuries. So if that if a traffic light could sense that the car is coming and warn people that could help reduce the chance of people getting hurt while crossing the road. I thought of it as a great idea for the oliphant science awards, as I thought of it like the smart crossing will help save many lives if it was real. My dad had ordered a invention engine bundle 1 pack to help me in this project.

## Aim of entry

My aim when I started this project was to give awareness to people who might be crossing the road, but mainly people who are distracted (looking at phone, talking to a friend etc). After listening to some disappointing accidents on the road with people speeding on the road I thought the smart crossing should have more alarm systems, so people who might not be paying attention to the red light like when to go and make a noise when not. With more noticeable systems that can raise awareness of a car coming or speeding, I hope that if my invention was real it would save more lives.

## Purpose of the smart crossing

The purpose of the smart crossing is to raise awareness of a person crossing approaching a crossing area. By setting multiple signals of caution it will help the driver who might be distracted know if a person is crossing or not.

## How it works

If there are no cars coming, the smart crossing will show a green light. The smart crossing will be connected to proximity sensor which the vehicle triggers, once it is triggered the green light turns off the red light will shine to maximum a noise will play and a small display will be on displaying 'stop'. Once the car is gone everything will stop and turn off and the green light will turn on.

# What is needed

Car/vehicle

Cardboard

Invention engineer starters pack

Paint

Texture

computer/laptop

Tape

# Code

Turn the green light on

wait until proximity sensor activated

    Turn green light off

    Turn red light on

    Speaker plays an alarm sound

    Display show stop

        Turn red light off

        Show blank on display

        Stop alarm sound

    Repeat 6 times

    Turn green light on

Repeat forever

(In Code)

```
Start
forever
  turn LED green on
  wait until object detected within short range by proximity sensor proximity
  turn LED green off
  repeat 5
    turn LED red on
    display the word stop on digital display display
    play alarm short effect on speaker speaker
    turn LED red off
    wait 100 milliseconds
  clear digital display display
  turn LED red off
```

The image shows a Scratch script for a proximity sensor alarm system. It begins with a 'Start' block, followed by a 'forever' loop. Inside the loop, the first step is to 'turn LED green on'. This is followed by a 'wait until' block that triggers when an 'object detected within short range by proximity sensor proximity'. Once triggered, the script turns the green LED 'off'. A 'repeat' block with a count of 5 follows. Inside this repeat block, the red LED is turned 'on', the word 'stop' is displayed on the digital display, an 'alarm' sound effect is played on the speaker, the red LED is turned 'off', and the script waits for 100 milliseconds. After the repeat block, the digital display is cleared, and the red LED is turned 'off' again. The 'forever' loop then repeats the entire sequence.

<https://inventionengine.app/#>

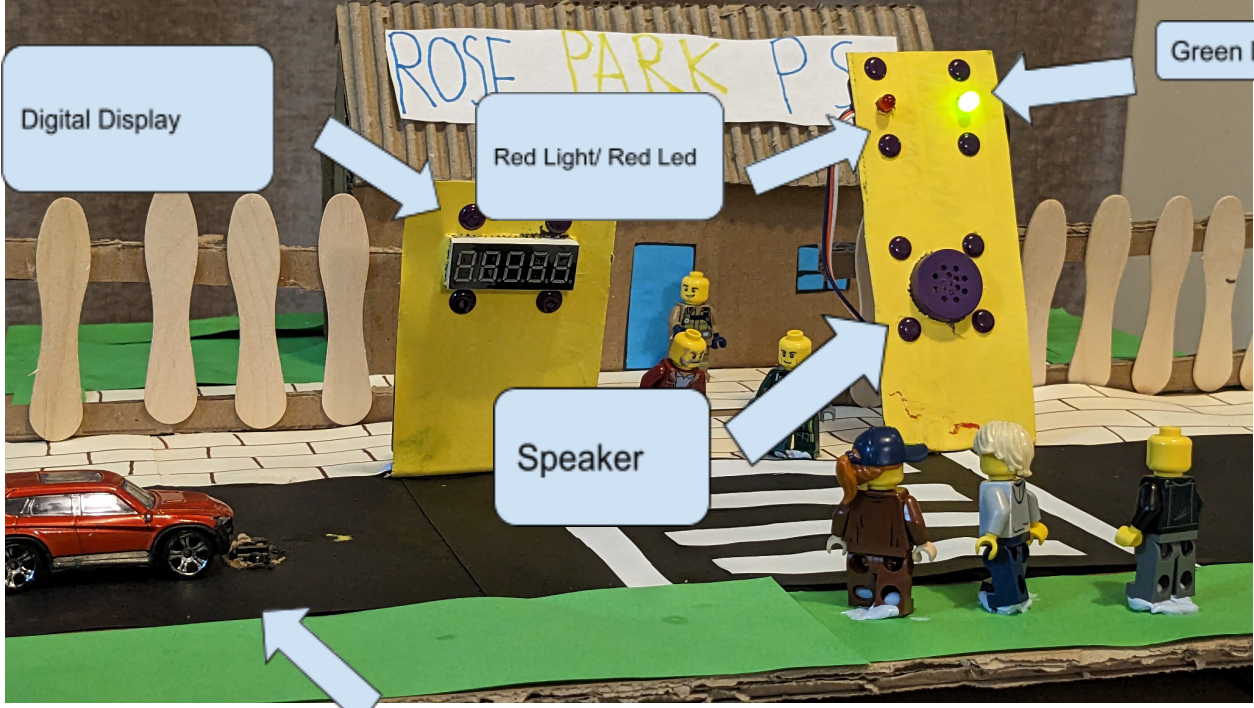
## Port configuration

Port 0	Green light (Green LED)
Port 1	Red light (Red LED)
Port 2	Display (Digital Display)
Port 4	Sensor (Proximity sensor)
Port 7	Speaker

(In Code)



# Final demonstration



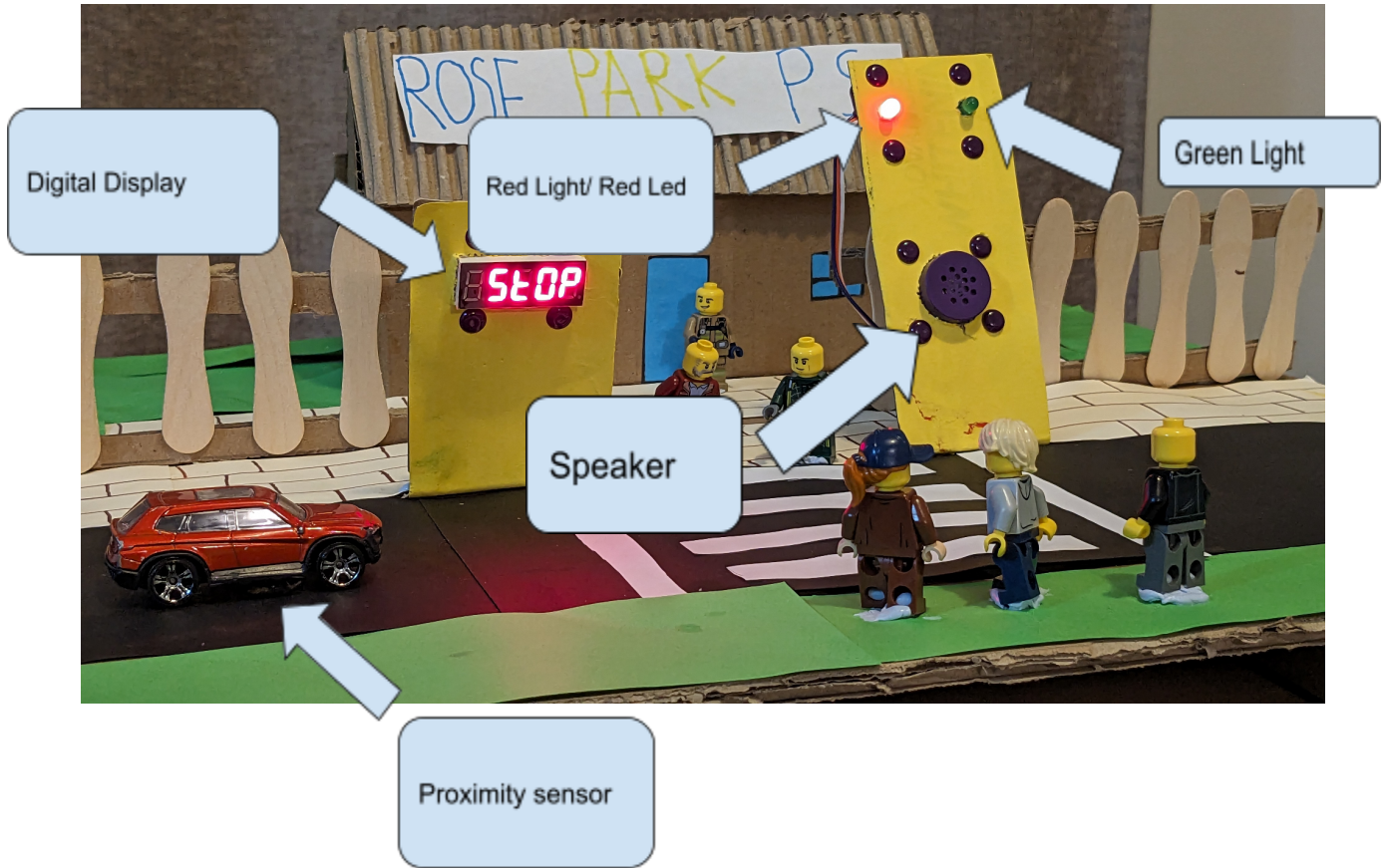
Digital Display

Red Light/ Red Led

Green Light

Speaker

Proximity sensor



## Video demonstration

<https://youtu.be/j4fIA-iT1t0>