Algo**Hack** micro:bit

ACCELEROMETER SENSING

Pitch & Roll Game
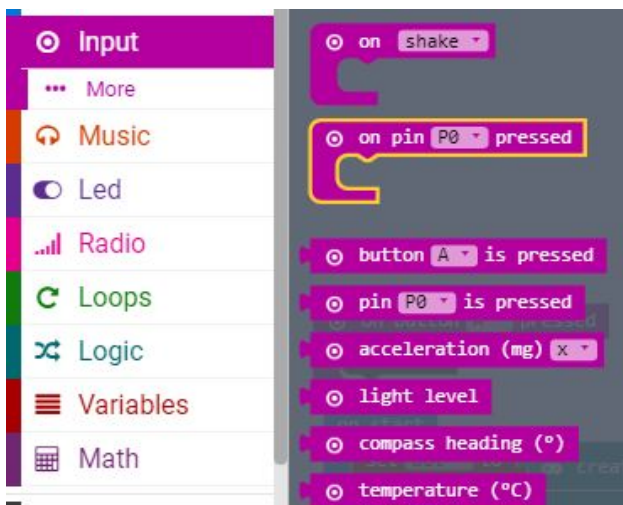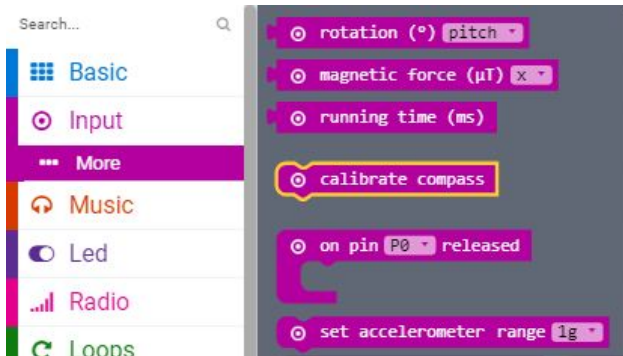
Authors

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*AlgoHack aims to teach Computer Science and Programing to young
people, initiated by Shilpa Sayura Foundation, supported by GOOGLE
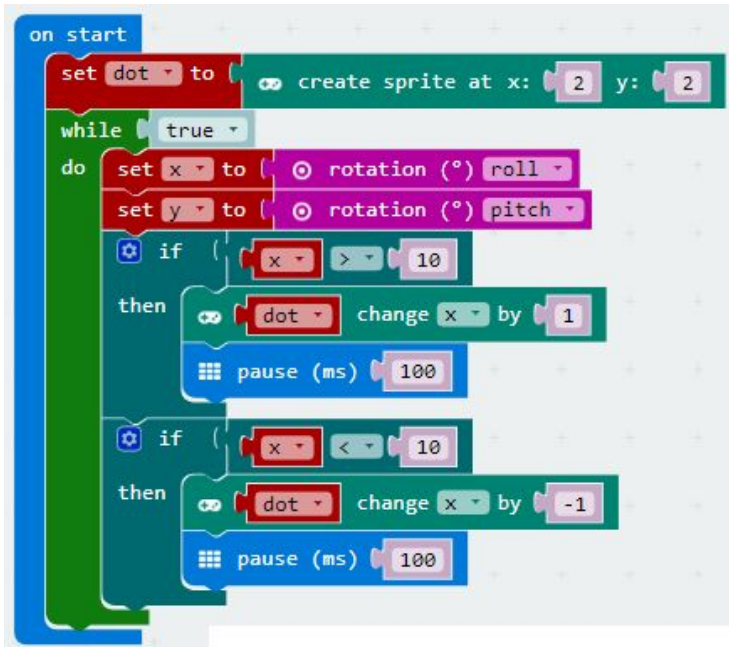RISE and Computer Society of Sri Lanka.*

We can measure acceleration with microbit. Acceleration is rate of change in speed.

The microbit provides acceleration in x, y, z axis in milli g

Using of the **pitch** and **roll** blocks to control a pixel
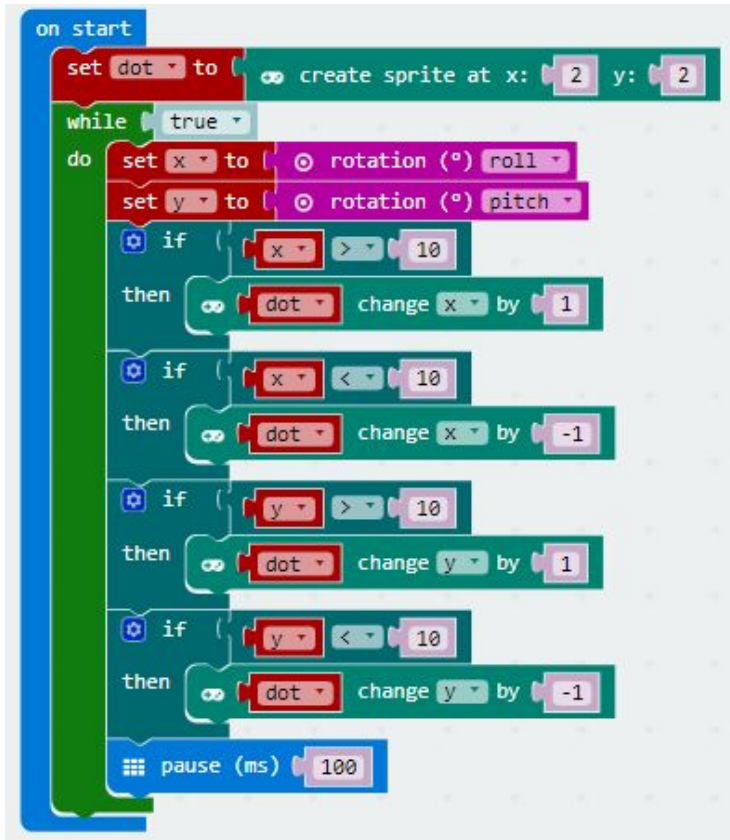

This code creates a sprite (dot) in the centre
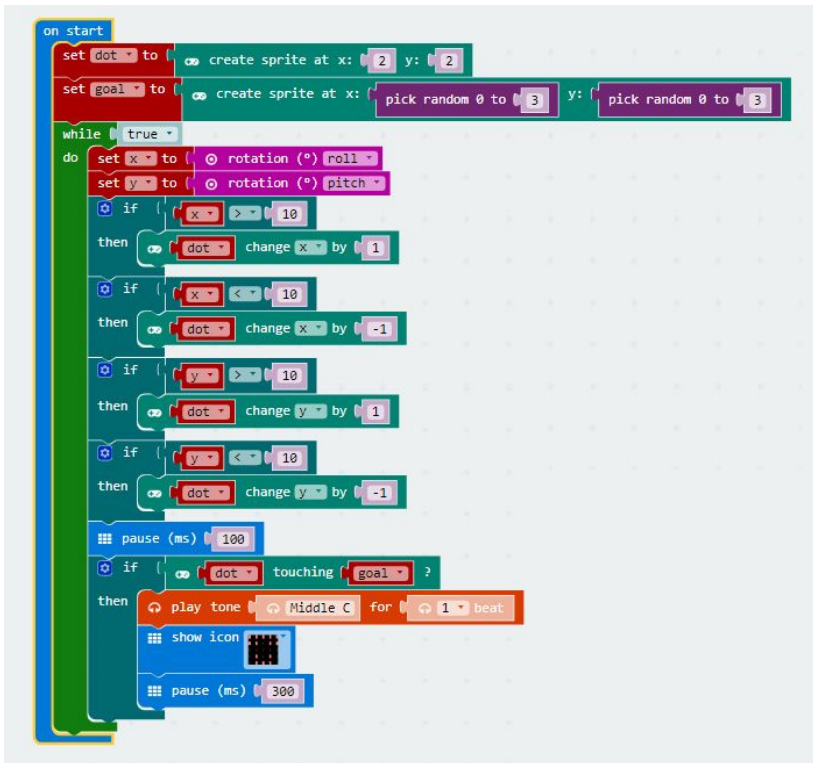
The while loop runs forever

The loop checks the pitch and roll of the microbit.

if the roll is more than 10 degrees then move dot right

if the roll is less than 10 degrees then move dot left

We can control sprite based on X and Y direction.

```
on start
  set dot ▾ to      ∞ create sprite at x: ( 2 ) y: ( 2 )
  while ( true ▾
  do    set x ▾ to (  ⊙ rotation (°) roll ▾
        set y ▾ to (  ⊙ rotation (°) pitch ▾
        ⚙ if  (  x ▾   > ▾  ( 10
        then  ∞  dot ▾  change x ▾ by ( 1

        ⚙ if  (  x ▾   < ▾  ( 10
        then  ∞  dot ▾  change x ▾ by ( -1

        ⚙ if  (  y ▾   > ▾  ( 10
        then  ∞  dot ▾  change y ▾ by ( 1

        ⚙ if  (  y ▾   < ▾  ( 10
        then  ∞  dot ▾  change y ▾ by ( -1

        ▦ pause (ms) ( 100
```

The final IF block at end of the code

uses the 'touching' block from the game menu

It tells if the two sprites are on top of each other.

Then the game ends

Move the 'goal' to another random location and restart the game. Think how you can count time and manage scores.

```
let item = 0
let y = 0
let x = 0
//create a sprite null object
let goal: game.LedSprite = null
let dot: game.LedSprite = null


dot = game.createSprite(2, 2)
goal = game.createSprite(Math.random(4), Math.random(4))


while (true) {
  x = input.rotation(Rotation.Roll)
  y = input.rotation(Rotation.Pitch)
  if (x > 10) {
    dot.change(LedSpriteProperty.X, 1)
  }
```

```
  if (x < 10) {
     dot.change(LedSpriteProperty.X, -1)
  }

  if (y > 10) {
     dot.change(LedSpriteProperty.Y, 1)
  }

  if (y < 10) {
     dot.change(LedSpriteProperty.Y, -1)
  }
 basic.pause(100)
 if (dot.isTouching(goal)) {
     basic.showIcon(IconNames.Fabulous)
     basic.pause(300)
}
  item = 0
}

input.onButtonPressed(Button.A, () => {
  control.reset()
})
```

කැමති විෂය
කැමති වෙලාවක
කැමති තැනක
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