

Douse Wildfire – Part I

Hello everyone! This is your friend Anita.

Great to see you again! Today, we are going to go on an important mission!

I am sure you want to know what it is all about. Let me give you a short background. You have already heard about how our habits are leading to climate change. Every action of every human being on our planet has an impact on the climate. Remember natural calamities such as cyclones, floods and heat waves are set to become more frequent with the changing climate.

Do you know that forests in India have experienced wildfires in the past? Based on forest inventory records, 54.40% of forests in India are exposed to occasional fires, 7.49% to moderately frequent fires and 2.4 % to high incidence levels of fires. These wildfires destroy ecosystems, often disturbing the biodiversity in the forests. They cause immense damage to animals and plants.

Our mission today is to create a game in Scratch to douse these dangerous wildfires by spraying water from an aeroplane, drone or helicopter. We have chosen an aeroplane for illustration purposes. Be careful! We have to ensure that the plane should accomplish its mission without crashing. Let's begin our mission of saving our forests from these wildfires.

In order to create the game, we will work on four distinct tasks:

- Coding the Aeroplane
 - Creating Wildfires
 - Showering water on the wildfires
 - Bringing the forest and the other elements together.
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Task I – Coding the Aeroplane

Let us begin by creating an aeroplane.

Go to 'costume'.

Delete the second costume and the image on the screen so that the screen looks empty. Click the 'cat icon' on the bottom left and choose a sprite of an aeroplane that you like. You can select a sprite that is available, create your own sprite in paint or upload any image of your choice. If you have uploaded an image, click costumes and Convert to vector so that you can play around with it. Click the flip button to change the direction of the plane, if needed.

It is time to begin coding the aeroplane. We have to create an event which allows the plane to jump up and down when the space bar button is pressed. Go to events, drag the green flag to the editor, drag the forever loop block from the control section and move it to the editor. From the control section drag the 'if then' block and place it inside the 'forever' loop. Go to the sensing section and drag <keyspace pressed> block and put it inside the <if then hexagonal> slot.

The aeroplane should be affected by gravity and should fall if the space bar is not pressed. We can do this by creating a variable for the speed of the plane on the Y-axis.

Go to variable, click the 'make a variable' button and name the variable 'YVelocity' and select the option 'For this sprite only'. It will be visible in the variable section.

Go to variable, choose the <Set my variable to 0> block and drag it between forever and green flag. Change the 'my variable' to 'YVelocity' using the drop down and set value to 0. This will initialise the variable to 0.

Set the initial position of the plane by defining the values of x and y. Go to motion section, drag 'go to x=0 y=0' block and put it between forever block and 'Set YVelocity to 0' block. Set the x and y values to = (-20,60) respectively.

To make the plane move up, go to motion, Drag the 'Change Y by 10' block from the motion section and put it inside the forever but before the 'if' block.

Go to the variable section and drag 'YVelocity' variable and put it in the 'change y by 10' block replacing it with number 10. This will change the Y position of the plane depending on the YVelocity value.

You will need to set the values for the 'change in Y' variable. This is done to change the Y-position of the plane when the space bar button is pressed. If the value of the Y-direction is positive, the plane will move up and if it is negative, the plane will move down.

Set the Y-velocity value to 9 or any number of your choice and test. When the space bar is pressed, the Y position of the plane will change to +9 and it will keep on moving upwards due to the forever loop. Go to the variable section, drag the 'set my variable to 0' and place it inside the 'if loop'. Change 'my variable' to 'YVelocity' from the drop down. Set the values in the block from 0 to 9.

Test it by clicking the flag button. The plane moves upwards when we click the space bar.

The plane should also move in the downward direction. As mentioned earlier, we will add a negative value in the Y-velocity variable.

Drag the 'Change my variable' block from the variable section and put it before 'if' block and after 'change y by YVelocity' block. Change 'my variable' to 'YVelocity'.

Set the negative value in the 'Change YVelocity' block' to -0.8. This will pull down the plane.

Test the plane by pressing the space bar. Wow, the plane is jumping both up and down.

Can you see the YVelocity variable on the screen? Let us hide the variable. Go to variables section and drag 'hide variable my variable' and place it under show. From the drop down, select YVelocity.

We have successfully completed the first task of our game development.

In the next video we will create wildfires.

Bye! See you soon!