**Install Instructions**

* For systems running Windows

1. **Create a file in your C: drive (Project3)**
2. **Install the Simple Fast Multimedia Library (SFML)**

* <https://www.sfml-dev.org/download/sfml/2.5.1/>.
* Download the file: GCC 7.3.0 MinGW (SEH)
* Unzip this file, put into Project3
* Rename it SFML

1. **Download the AVC files**

* Download [AVC\_Win10.zip](https://ecs.wgtn.ac.nz/foswiki/pub/Courses/ENGR101_2020T1/Project3/AVC_Win10.zip)
* Unzip the file, inside are two files AVC\_robot and AVC\_server
* Move the two files to your Project3 file (where SFML file is)

1. **Change Geany**

* Go to build, set build commands
* Instead of make enter mingw32-make

1. **Change AVC\_robot**

* In Geany open the files makefile and robot.cpp from the AVC\_robot file
* In makefile change it to say**:**

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INCLUDE = -I C:\\Project3\SFML\include

LIBS = -L C:\\Project3\SFML\lib

robot.exe: robot.o

g++ $(LIBS) -o robot robot.o -lsfml-window -lsfml-graphics -lsfml-system -lsfml-network

robot.o: robot.cpp

g++ -c $(INCLUDE) robot.cpp

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* For the line “INCLUDE = -I C:\\Project3\SFML\include” you insert the file address to the include folder found in the SFML folder, change this line to the correct file address for your include folder if it is different
* For the line “LIBS = -L C:\\Project3\SFML\lib” you insert the file address to the lib folder found in the SFML folder, change this line to the correct file address for your lib folder if it is different
* Save
* In robot.cpp change it to say:

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#include "robot.hpp"

#include <vector>

//check if the current pixel is white

int doWhiteCheck(int white){

if(white==255){return 1;}

else{return 0;}

}

int doRedCheck(int redPix){

if(redPix==255){return 1;}

else{return 0;}

}

int main(){

if (initClientRobot() !=0){

std::cout<<" Error initializing robot"<<std::endl;

}

double vLeft = 30.0;

double vRight = 30.0;

takePicture();

SavePPMFile("i0.ppm",cameraView);

int centre = (cameraView.width)/2; //the middle pixel

while(1){

takePicture();

double shift = 0; //-distance of middle of white line from centre

setMotors(vLeft,vRight);

for(int i = 0; i<cameraView.width; i++){

int focusRow = (cameraView.width)/2; //-the chosen row to read the colour of the pixels from

int whitePix = get\_pixel(cameraView, focusRow, i, 3); //-looks at the pixel

if(doWhiteCheck(whitePix)==1) { // if pixel is white, it is part of centre line

shift = centre - i-4; // the centre of view - position of white pixel = distance from centre

if (shift == 0) { // if distance from centre is 0

vLeft = 30; // set motors to go straight

vRight = 30;

} else if (shift < 0) { //if robot is left of line

vLeft = 30-(shift/5); // set motors to go right

vRight = 30+(shift/5);

} else if (shift > 0) { //if robot is right of line

vRight = 30+(shift/5); // set motors to go left

vLeft = 30-(shift/5);

}

}

}

std::cout<<" vLeft="<<vLeft<<" vRight="<<vRight<<std::endl;

usleep(10000);

} //while

} // main

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* Save
* Select build -> make all (should say compilation finished successfully)

1. Change AVC\_server

* Open makefile in Geany from the AVC\_server folder
* Change it to say:

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INCLUDE = -I C:\\Project3\SFML\include

LIBS = -L C:\\Project3\SFML\lib

server3: server3.o

g++ $(LIBS) -o server3 server3.o -lsfml-window -lsfml-graphics -lsfml-system -lsfml-network

server3.o: server3.cpp

g++ -c $(INCLUDE) server3.cpp

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* For the line “INCLUDE = -I C:\\Project3\SFML\include” , should be same address you used in AVC\_robot makefile
* For the line “LIBS = -L C:\\Project3\SFML\lib” should be same address you used in AVC\_robot makefile
* Save

1. **Open server3.exe**

* Found in AVC\_server file

1. **Execute robot.cpp**