CS101 PROJECTS 2014

BATTLE OF THE TANKS

Abhishek Majumdar(group leader)   140110082

Anagh Trivedi   14D170019

Ritu Jhare   140010032

Pooja Doifode   140110039
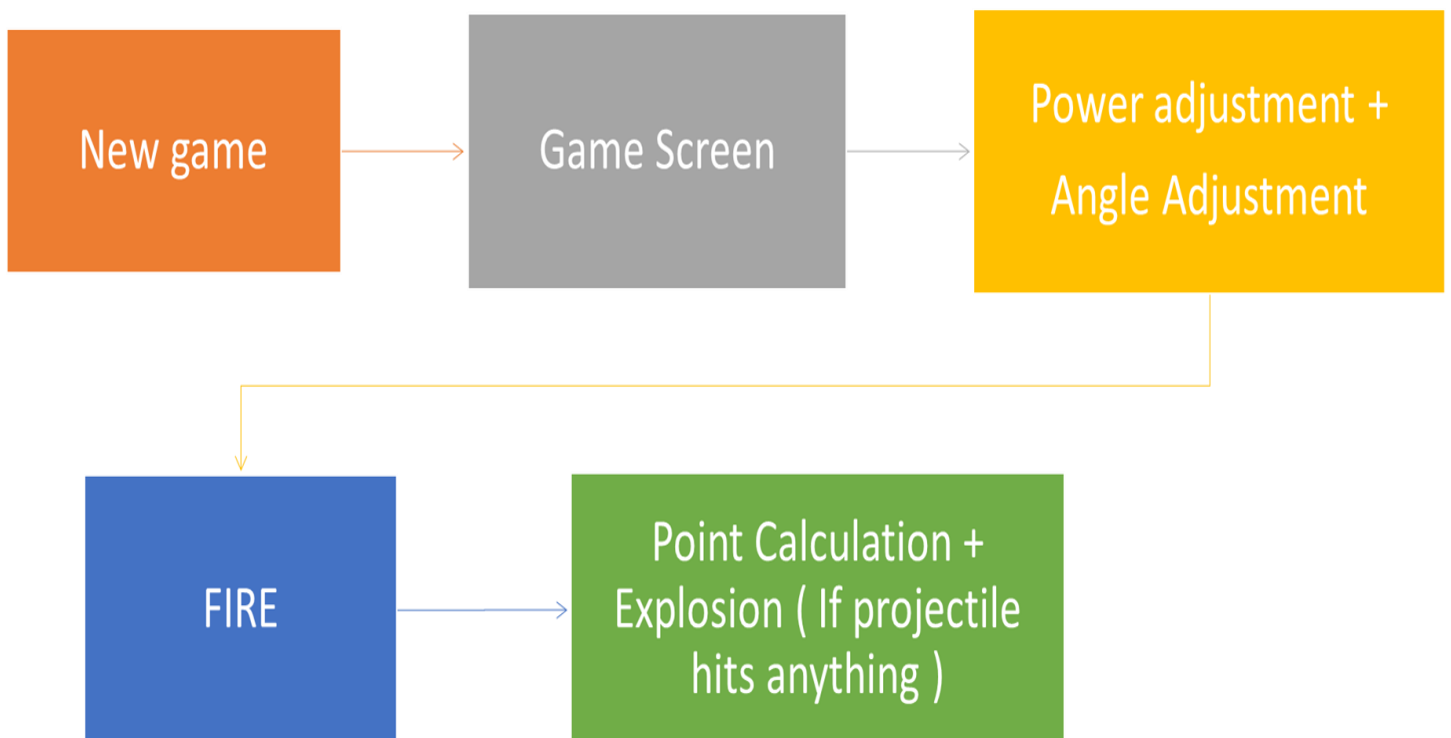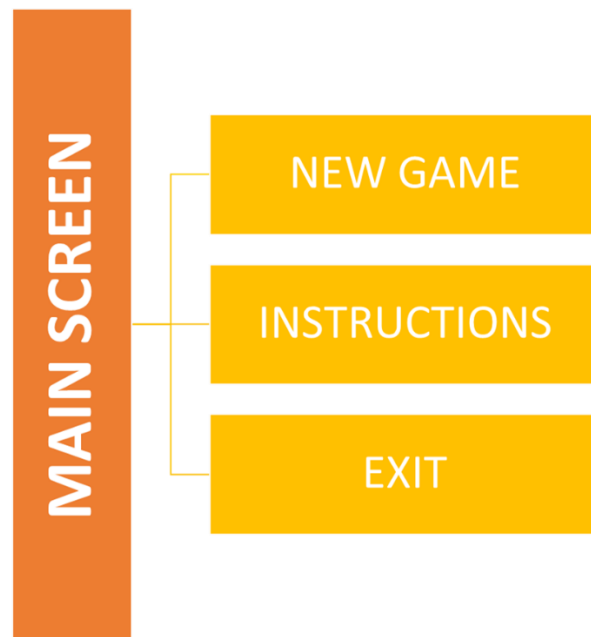
INTRODUCTION

This project is an interactive PC arcade game called "BATTLE OF THE TANKS" . This is

a two player arcade game where two tanks fire upon each other with weapons .

Depending upon the accuracy of a "hit" (which can be adjusted by a variety of

factors like power and angle and movement) players are awarded points . The

player with greater points at the end of the game wins . Though basically it is a turn-

by-turn firing game , thinking ahead of opponent pays and strategy has a key role in

winning. The game also has a random Wind which adds or reduces your power of a

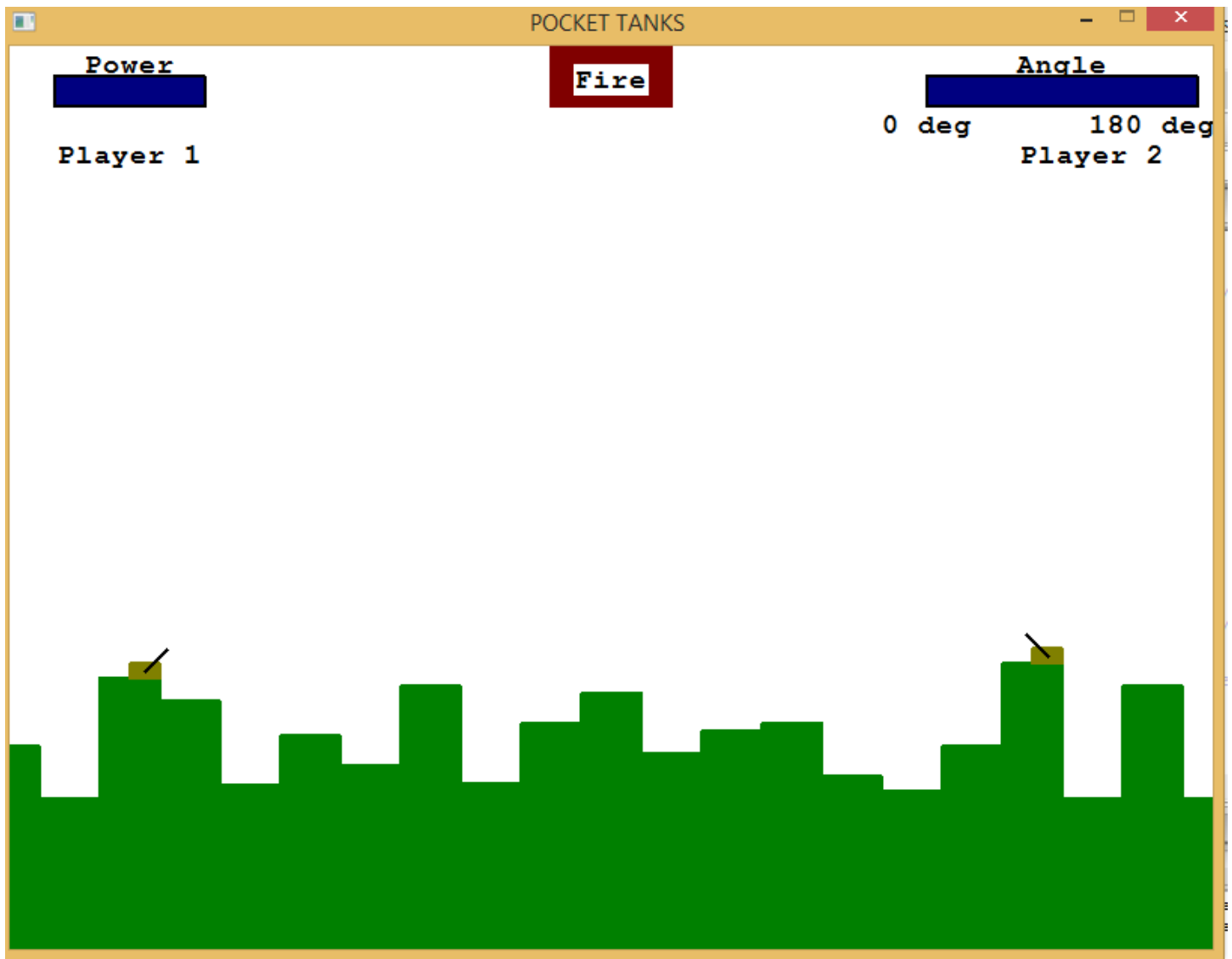hit to make the game more challenging .

TASKS COMPLETED + PROBLEMS FACED

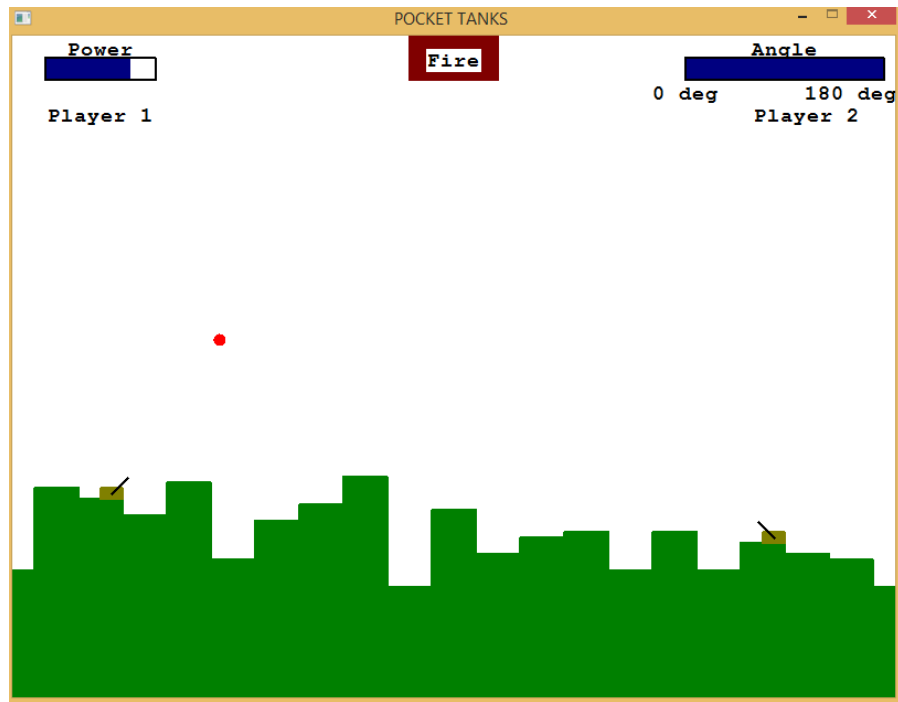| S.NO	TASK	PROBLEMS	SOLUTION
1)	Implementation of GUI	Registering Clicks	Compared the X and Y coordinate to an area and used conditional execution for that area .
2)	Taking input from the GUI	No provision of textual input in CANVAS	Made a rectangle whose width changes upon clicking . Scaled that width value to input .
3)	Collision Detection	No function to detect if objects are overlapping	Ran the projectile frame by frame and at every frame checked whether its center is coinciding with and existing object i.e. Terrain .
4)	Point calculation	Detecting the closeness of a blast	Calculated the distance of the blast from the tank using the coordinates of centre of the missile .

DIAGRAMS / FLOWCHARTS

MAIN SCREEN

- NEW GAME
- INSTRUCTIONS
- EXIT

New game → Game Screen → Power adjustment + Angle Adjustment

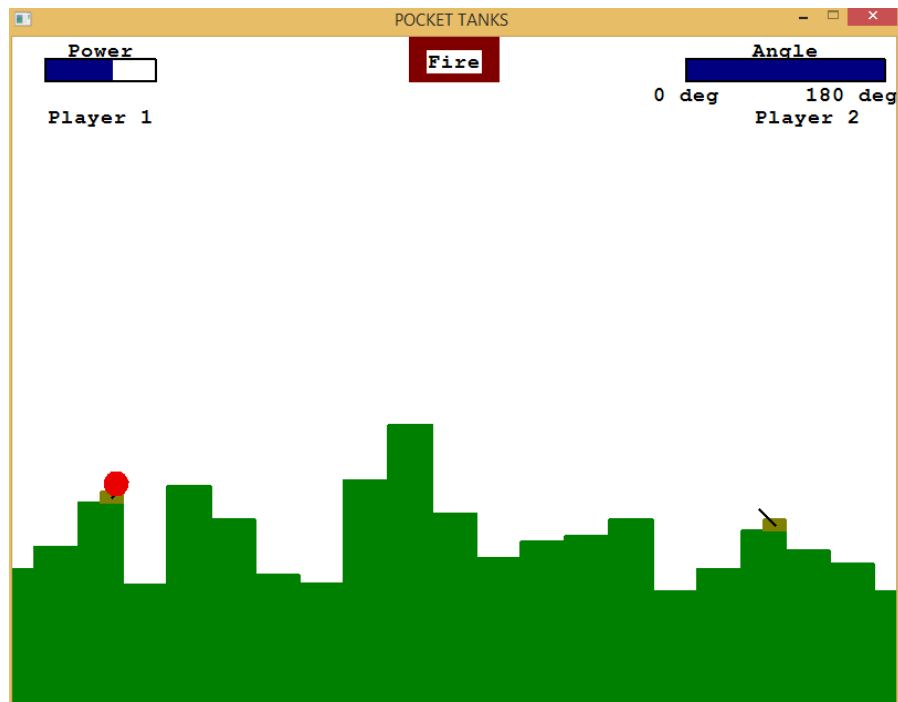FIRE → Point Calculation + Explosion (If projectile hits anything)

SCREENSHOTS

The Basic layout

A tank firing a shot

A Tank getting hit (Explosion)

Program characteristics

- Flexibility – Minimal effort is needed to modify the Program. as it is broken into small Func.s which achieve their desired goal and hence to change a particular feature one does not has to go through the whole code .

- Efficiency – Though this factor is dependant on firmware , in general the product should be efficient and smooth . It dosen't have heavy graphics or audio to slow it down .

- Security – The game has no encryption of data or restriction on modification . Any enthusiastic game developer can use this code as a sub Program. or modify it as he wishes .

- Maintainability – A very elegant thing with GUI's are that most error developed can be guessed by analyzing the visual output and then treating only that part of the code . Also Modularity makes it very easy to maintain and diagnose .

- Reusability – The Program. is mostly self contained and hence it would not be of much use in some other Program. .

- Usability – Minimal effort is required by the player to learn it . But the people who wish to develop it further have to learn a lot of Programming skills .

FUTURE DIRECTIONS

EXTENDED WEAPONARY :

A choice of some 5-6 weapons can be given by defining the functions for the weapons . They can be graphically displayed on the screen and called accordingly . Their movement can be implemented similar to that described in the function " Shot " .

Terrain :

A better and more interactive terrain can be made (Using advanced methods like Perlin noise generation) . One has to include an additional library called Accidental library but the terrain generated using it is much smoother . One can also make the terrain more interactive by adding Water bodies or pits .

Tanks :

The tanks can be given more features like Jumping (with Rocket pads or something similar) . He can also add armor or aggression mode to the tanks . (One simply has to add such member functions in the Class Tank) .

References

- http://www.cse.iitb.ac.in/~ranade/simplecpp/CB-Simplecpp-setup.exe

- An introduction to programramming through c++

- The Setup video enclosed with this folder .