
LAB 2

UART Interface Farmville Game

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Report Summary

This contains the project description and the functionalities to be implemented. It states if all the functionalities were achieved by the person coding or if there were anything that couldn't be achieved. The report also contains the state diagram of the one plot and the conditions required to move from one state to the other. The report concludes with an image of the debug folder.

Project Description

This project takes in user inputs from the computer keyboard with the help of UART interfaces and plays a game on the MSP432. The game starts when any character on the keyboard is entered i.e., the timer of the game (the months and days of the farm) starts to increment.

The following are the features of the project:

There are 6 plots on the farm when the character 'p' is encountered a selected plot goes into the seeding phase. As time (months and days) increments the crop grows in terms of its age and the water level and health of the crop decrements. To have the crop always growing the user can tend to tend to the crop by pressing 't' and water the crop by pressing 'r'.

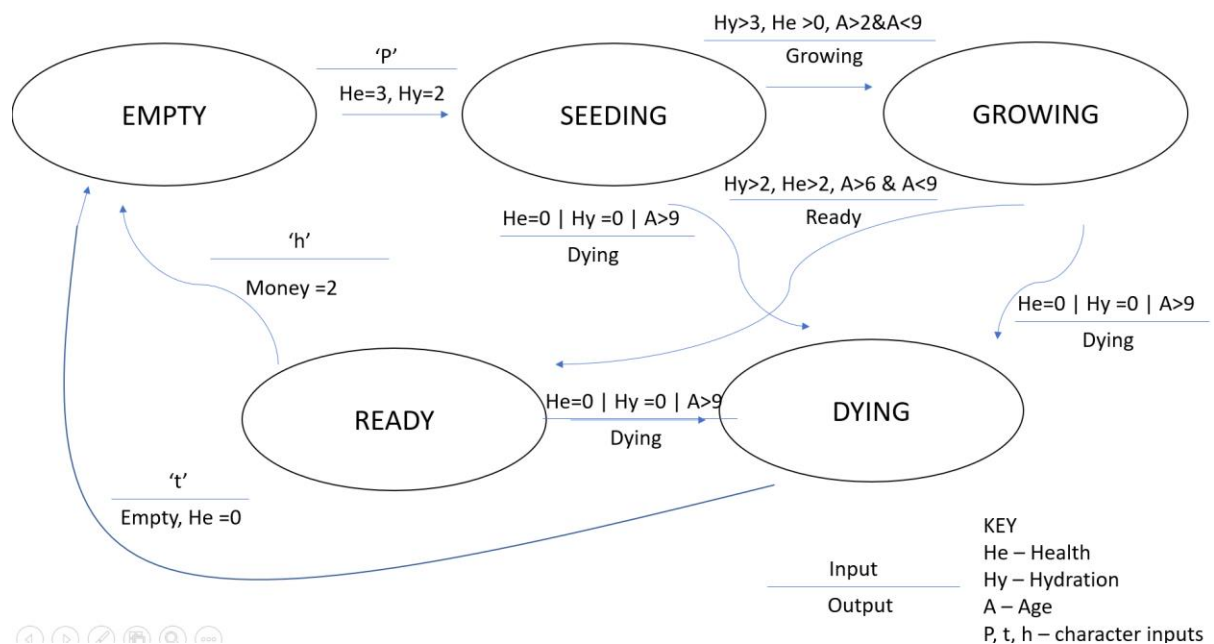
When conditions with the age, water and health levels are met the crop grows and then is ready to harvest. One harvests the crop by pressing 'h' and if the crop is not harvested at during a time period it dies, and it is cleared.

The above functionalities are implemented across the 6 plots. The farm also had overall health that is contributed by all the live plots. It is the average health across the farm. There is aspect of money in the game, when the user gains money if a crop in one plot is harvested at the right time and to plant seeds the money decrements by 1. The games end when the user has no money and no health.

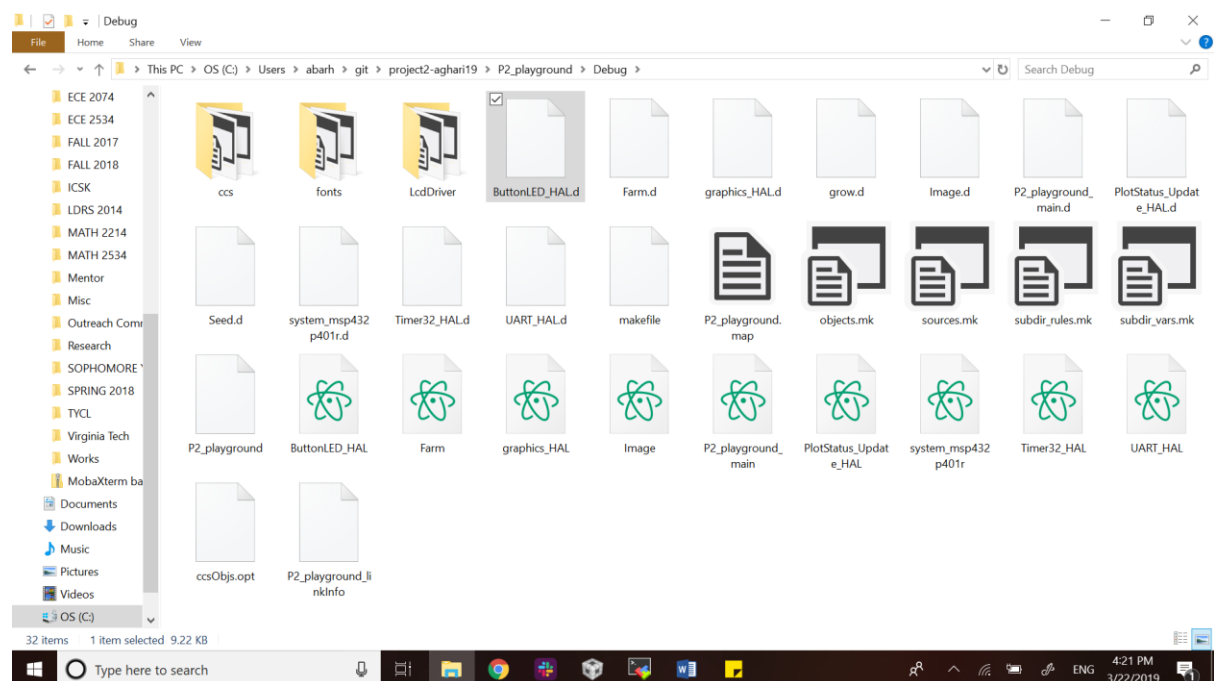
To make the game more challenging, there are three different levels: Easy, Medium, Hard. The difference is that the month and days are incrementing at a faster rate when the levels are increased.

All the aspects discussed above were achieved in the game along with a game over screen that involves an image to print with a text saying game over.

Farm Plot's States



Debug Folder



D File – D is a programming language. It is a combination of C++ and Python/Ruby. D file extensions are files written in this programming language.

FILE – is a file that does not have an extension

Makefile – brings together all the files that need to be combined and linked together

OBJ – this is an object file. With the help of a compiler the software code(HLL) is converted to an object file(LL) that the computer and microcontroller can understand.

But the object file cannot be executed immediately it has to be linked to other object files, library code,executable etc and the linker does this and creates a single executable file.