Energy Project Design Document

An Educational Video Game
(Last Major Update 3/15)

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Table of Contents

Introduction

Use Cases

Why we need this:

1. Documentation is awesome.
2. Some people will leave at the end of the semester, we need to have a paper trail for the next group of people.
3. Lets people know who is working on what
4. Lets people know what is left to be done
5. Organizes the project

UC1: Gesture Recognition from Matlab

UC2: OSC Connection from Matlab

UC3: OSC Connection to Unity

Preconditions

Have Matlab running in the background with some data stream. Have OSC server running on 127.0.0.1: 12345.

Main Flow

Read from port 12345 on IP 127.0.0.1. Use Ventuz library to hook up to OSC. <Insert script from OSC to Unity game code>.

Sub Flows

<Talk more about the OSC script for Unity>

Alternative Flows

< Talk about any errors here >

UC4: Level 0

Preconditions

Main Flow

Sub Flows

Alternative Flows

UC5: Level 1

Preconditions

Main Flow

Sub Flows

Alternative Flows

UC6: Level 2

UC7: Level 3

UC8:

UC9:

UC10:

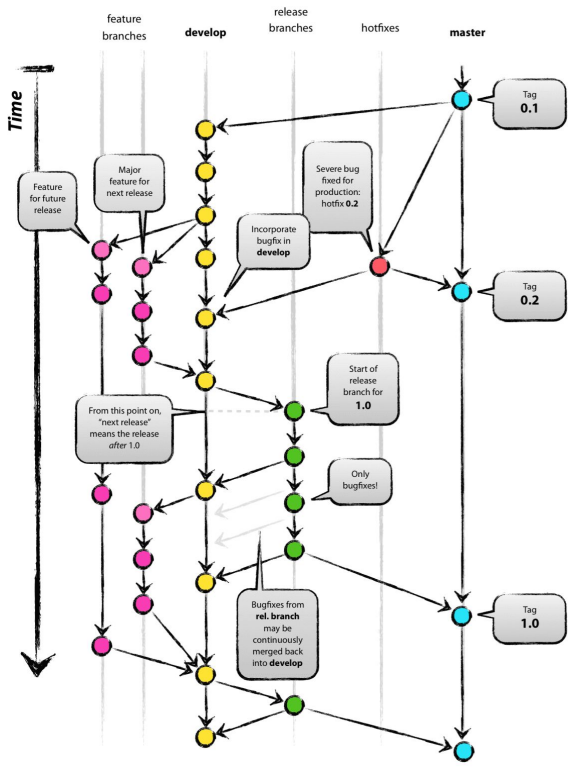
UC11:

User Stories

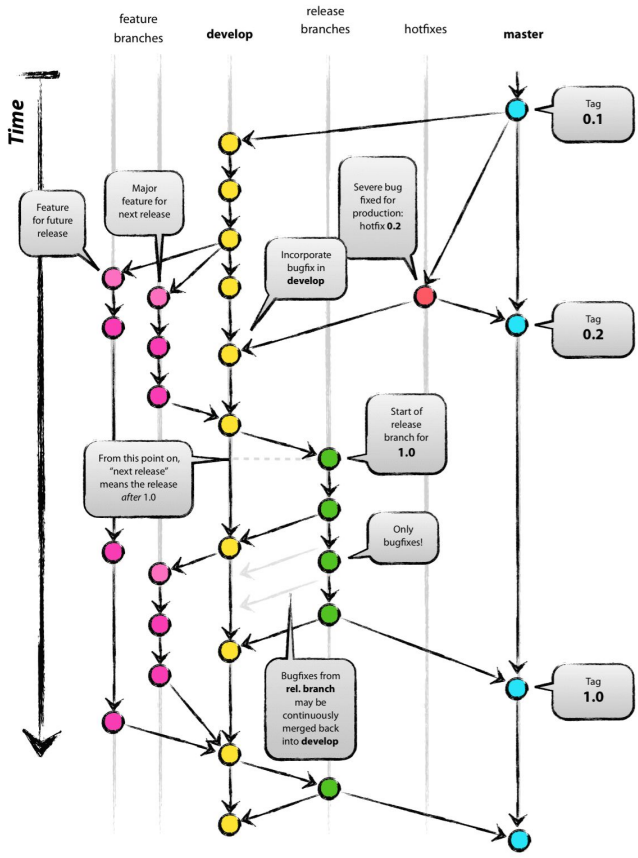
Git Workflow

http://nvie.com/posts/a-successful-git-branching-model/

- Use feature branching as much as you want



Meeting Minutes



3 / 15
Members Present:
Sam, Raghav, Ben, Jessie, Jackie

12:00pm: Start of meeting
12:30pm: Created Design Document
12:35pm: Talked about proper git branching

- We will have
    - Master (NEVER broken)
    - Develop (can be broken, but not for very long)
    - Features (as needed, by individuals)

12:40pm: Dynamic Destruction Model

- Progressive damaged model (threshold based model replacement)
    - Should force be taken into account?
    - Number of punches?
        - Yes, this one.
- Hand tracking? Probably Not.
    - More difficult
    - Shaky
    - How do skeletal meshes interact with unity's physics engine?
- We need a boolean from matlab if user is punching.
    - OSC Format: "/user/punch <boolean>"

12:50pm: Tasks for next week

- OSC to Unity: Ventuz library (Raghav)

12:55pm:
Level 1

- User punches
- Wall takes damage
- Mouse goes through hole

Level 2

- Mouse jumps onto higher platform
- Mouse goes through hole

01:00pm: Rigging is too hard

- 2D is best. Just make some sprite sheets

- 3D modeling will take
    - Modeling
    - Rigging
    - Animation
- 3D modeling is easy to look bad
- Should we try first person view?
- The mouse will be hand-drawn
- Will everything be hand-drawn?

01:05pm:
Mouse Animations for Level 1 and 2

1. Punching
2. Running
3. Jumping
4. Mid-air (at highest point of jump)
5. Falling
6. Landing
7. Cheese eating
8. Idle
9. Entrance/ Exit?

01:10pm: How do we show the spring energy?

- Trampoline?
    - Doesn't effectively show energy transformation
- Spring is hard to do with a single mouse
- Sling shot?
    - What would the gesture be?
    - Leaning back?
    - Walk in place?
    - No sense that mouse itself is gaining potential energy?
- Spring attached to floor
    - Mouse pushes down spring
    - When to trigger firing animation?
        - Cutscene? Mouse hops on and cuts to a pre-animated scene for jumping.
    - Mouse pushes down spring, locks spring, gets on, releases lever.
    - Gestures are: crouching down for compression, punch for release
    - Animations:
        - Pushing down spring
        - getting on spring
        - idle on spring
        - hand on lever
        - pulling lever
- Catapult?

    - Wind the catapult, jumps in, releases

01:35pm: We need an animator!!!
01:45pm: Level 1 Tasks

- Jackie: Three different settings - indoor, outdoor, factory
- Jessie: Level 1 game states
- Raghav: OSC to Unity
- Ben: Destructible Walls
- Sam: Level 1 game states, move design document over to a wiki page

Concerns for next meeting:

- Clarify robot mouse idea, specifically if we want to do this?
- Talk about new spring idea
- Express need for an animator

02:10pm: Meeting adjourned.

4 / 5
Members Present:
Raghav, Ben, Jessie, Jackie

How do we connect spring with robot?

- Connect the spring on the legs of the robot

Climbing the wall - animation of the robot?

- Find a existing animation of our robot
- Map all the joints of the robot with the player
    - Need Kinect v2 with MS-SDK on Assets store ($20)
    - https://www.youtube.com/watch?v=nJ_0kQR_OV4
    - Need to update to Unity 5.0.0 or higher
    - Don't know if it works perfectly

Energy bar

- Combined with color contribution
- p1(blue) total(purple) p2(red)
- Show energy percent at the top of the game scene

Appendix

What is a use case?
What is a user story?

Example Use Case

Use Case 63: Obstetrics Patient Initialization

63.1 Preconditions

An HCP is a registered user of the iTrust Medical Records system (UC2). The iTrust HCP user has authenticated himself or herself in the iTrust Medical Records system (UC3). The patient associated with the obstetrics patient initialziation must by a registered patient in the iTrust Medical Records system.

63.2: Main Flow

Any HCP may search for the patient by MID or patient name [S1][E1][E2][E3]. The history of the patient's obstetrics care is displayed as a list of patient initialization records in decending order by date (the most recent record is at the top of the list). Any HCP has the option to select an existing record to view. If the HCP selects to view an existing record, the record is shown as a read only version of the information in [S2][S3]. Only HCPs with a specialization of “OB/GYN” may create a new obstetrics record via a link or button the list of patient initializaiton records. If the OB/GYN HCP selects to add a new record, the OB/GYN HCP enters information required for the initial obstetrics patient visit including the last menstrual period (LMP) [S2] and prior pregnancies [S3]. The OB/GYN HCP submits the form and is sent to the main page for obstetric records with the listing of the patient's history of obstetrics care.

63.3 Sub-flows

- [S1] If the patient's sex is female, the obstetric initialization page is shown. The current date of the obstetrics patient initialization is populated in the date field.
- [S2] The HCP enters the date of the first day of the patient's last menstrual period (LMP). The estimated due date (EDD) and the number of weeks pregnant on the obstetrics patient initialization date are calculated and displayed.
    - EDD = LMP + 280 days
    - Day 0 of a week is the day (e.g., Monday, Tuesday, ect.) of the LMP. The LMP is day zero, LMP + 1 is 0 weeks 1 day, LMP + 7 is 1 week 0 days, LMP + 8 is 1 week 1 day, etc. The obstetrics patient initialzation shows the number of weeks pregnant on the day of the record creation.
- [S3] A prior pregnancy has the following information described in Data Format 6.14 [E4]. The table should be populated with information that already exists in the iTrust system, if any. The HCP adds any additional prior pregnancy information to the table.
    - Year of conception
    - Number of weeks pregnant
    - Number of hours in labor
    - Vaginal Delivery, Caesarean Section, or Miscarriage
    - Whether the pregnancy was twins or not

63.4: Alternative Flows

- [E1] The HCP types an invalid medical identification number or name or a medical identification number or name of a patient not in the system and is prompted to try again.

- [E2] The patient chosen is not the desired patient. The HCP does not confirm the selection and is prompted to try again.
- [E3] The selected patient's sex is male. The error message, “The patient is not eligible for obstetric care.” is displayed and the HCP is prompted to try again.
- [E4] Invalid inputs are flagged and an error message appropriate to the input is printed.
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