

Design Document



**ROSENCRANTZ & GUILDENSTERN
ARE DEAD**

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Hamlet / Rosencrantz & Guildenstern are Dead performed with dynamic camera angles

A prototype in which a live performance of a scene from Hamlet will be combined with both live and prerecorded video footage displaying the scene from different camera angles and perspectives from which the audience will be able to select their preferred view.

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I. General Information

High Concept

Movies are capable of conveying emotion and subtext in a scene through the use of different camera angles – extreme close-ups are often used to intensify dramatic facial expressions from a character and first-person perspective shots allow audience members to see through the eyes of another person. Traditional theatre does not benefit from multiple camera angles, and the only perspective an audience member gets on a scene is the one from his/her seat. Our goal is to change this by building a prototype around the notion of perspective, and allowing audience members (5-10 people for the prototype) to interactively change their viewpoints throughout a theatrical performance.

Technology will help us to achieve our goal with this prototype by allowing us to incorporate elements of cinematography into live-action theatre, and give audience members the ability to experience a scene from different perspectives without ever moving from their seats. This can be done through the use of live and prerecorded video footage that could be displayed on projection screens and juxtaposed to the live performance itself. Audience members should be able to view a scene being acted out live while also making meaningful choices that allow them to simultaneously view the scene from different perspectives. This level of interactivity between audience and play should heighten the meaning of the play's content without detracting from the overall performance, and create a richer theatrical experience for all involved.

Scenic Route

Not only does mixing film with theatre allow us to incorporate different/interesting ways of blocking a scene because we are not restricted to many traditional "rules" of theatre (i.e. actors not turning their backs to the audience, etc.) but it also allows us to supplement the play's content with information regarding characters that are not necessarily a part of the action going on stage. With this in mind, we have discussed combining elements of *Hamlet* with *Rosencrantz & Guildenstern are Dead* (*R & G are D*) to create a truly meta-theatrical concept.

We have contemplated using act III, scene iv from *Hamlet*, in which Prince Hamlet confronts Queen Gertrude in her bedchamber and Polonius eavesdrops on the two of them from behind a bedroom tapestry, as one example of a scene around which we could build this prototype. This scene could help showcase the technology in our prototype because it is part of a classic play, so everyone in the audience should be familiar with the story as well as how it is traditionally performed in front of a

live crowd. Therefore, our untraditional rendition of the scene might shed new light on the content for our audience members.

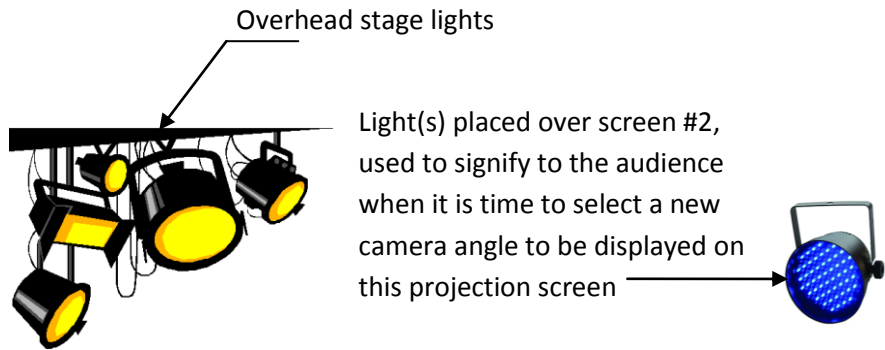
This particular scene will also allow us to bring many different elements from *Rosencrantz and Guildenstern are Dead* into what will initially appear to be solely a performance of a scene from *Hamlet*. For example, in one camera angle we might show prerecorded footage of Rosencrantz and Guildenstern approaching the bedchamber from a different location that is separate from the scene itself. The two may also tie into the scene's ending, when Polonius is killed by Hamlet, since their clumsy actions indirectly lead to his death, as told in *R & G are D's* story. This is a concept we have discussed for the initial stages of this prototype, but we hope to bring in more of the play beyond this scene as time allows. We are considering using pre-recorded footage as well to give additional background information as to what is going on with other characters in the play aside from Rosencrantz and Guildenstern and the ones directly involved with the scene; perhaps video showing what is happening with Fortinbras and his army?

Stage Setup

Our venue will be a traditional theatre setup with the audience all facing the stage at the front, however we will add two large projection screens off to the left and right sides of the stage. Cameras will also be strategically placed around the stage so that we get meaningful shots of the action without breaking the illusion of the play. Along with overhead stage lights, other lights should be placed somewhere above each screen. There will be some instances in the play where the audience will be given a chance to vote on camera angles they would like to view, and these points in time can be represented by small lights which we will use in a subtle, intelligent manner to signify to audience members when it is time for them to select a different camera angle to appear on one of the two projection screens. These moments will be worked into the performance (introduced during extended moments of silence, etc.) so that the selection process does not compete with the play or detract from the stage action in any manner. The selection mechanic (further explained on pg. 5 of this document) could be explained to the audience before the performance, perhaps in an announcement or in a playbill. Figure 1 on the next page displays the aforementioned stage setup.

FIGURE 1

Diagram of the stage setup with projection screens and lights



Projection Screen #1



Projection Screen #2

Stage with actors, props, and cameras: *Note: Cameras are not actual size, shape, or color. Placement of the cameras in this diagram is also just for show for the sake of the diagram.

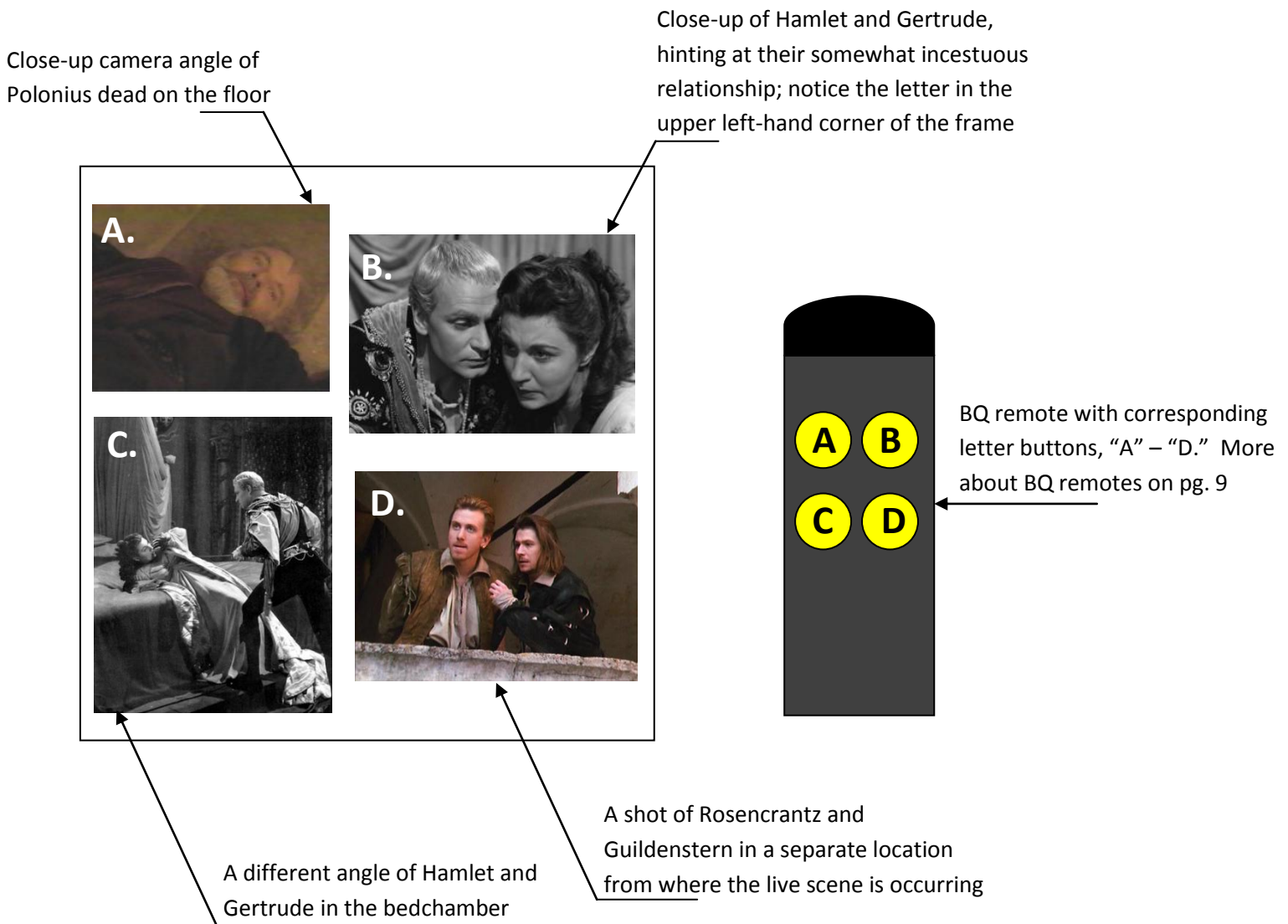
Audience Seating Area

*Note: 5 – 10 people will be able to participate in the prototype but there may be room for more people to sit and watch without directly interacting

Camera-Angle-Selection Screen

When it is time for audience members to choose which camera angle they would like to see displayed on one of the projection screens, we will first project all of their choices onto the screen. Audience members will be presented with anywhere between 2 – 4 different camera angle options from which they can select one to be projected in full during a portion of the performance. Each option should have a letter (A - D) designated to it, which should correspond with the letters on the audience members' Beyond Question (BQ) remote controls (see pg. 9 for more on Beyond-Question-remote technology). Figure 2 below shows how the selection screen might look during a part of the performance.

FIGURE 2
Selection Screen and BQ Remote



II. Detailed Description

One Possible Play Through

1. Short Tutorial

Screen #1 (located just off of stage right) will display a text description of what will happen on the screen when it is time for the audience to select from a number of camera angle choices. This text will go over how to use the Beyond Question remotes to pick one of the 2-4 choices displayed on the screen. During this time, Screen #2 (located just off of stage left) will show a visual tutorial aide.

2. Action!

The scene opens with two separate visuals fading in on Screens 1 and 2. No action is occurring on the stage yet. Screen #1 will display prerecorded footage of Hamlet walking up the stairs, headed toward Queen Gertrude's bedchamber. After Screen #1's image has been displayed for about 10 seconds, lights should illuminate the stage, revealing Queen Gertrude and Polonius alone in the Queen's bedchamber. At this time, Screen #2 should show a live feed coming from a camera strategically positioned somewhere on the stage so that it displays an over-shoulder angle from Gertrude's perspective on the doorway from which Hamlet will soon make his entrance. *Images are displayed on the screens before any live action occurs so that the audience can familiarize themselves with the filmed footage, which will consist of prerecorded footage and live feed – both on display here at the beginning of the scene.

After 30 seconds of showing the images on the screen, the live action will begin on stage as the actors playing Gertrude and Polonius begin a brief discourse about Hamlet's recent behavior. After the two talk, Polonius goes and hides behind a tapestry in the bedchamber, located at stage right (location of the tapestry is important because we will eventually present the audience with a camera angle depicting Polonius's POV from behind the tapestry, and that camera angle should not show any of the audience members seated, watching the performance). When Polonius takes his position behind the tapestry, this is our cue to present the audience with their first chance to select a new camera angle from which to see the scene to be displayed on Screen #1.

The light(s) above projection Screen #1 (off to stage right) should activate, and two different camera angle options should be displayed on the screen, each with a different letter of the alphabet in the upper left-hand corner of the frame (A and B). This selection process should not last any longer than 30 seconds, and a camera angle should be selected before Hamlet comes on the scene. One camera angle option should be a first-person perspective from Polonius's POV (live feed). The other option should be prerecorded footage of an extreme close-up of Polonius's eyes. *We only give the audience two choices at this time in order to ease them into the interaction. Screen #2 should still display the same angle (over-the-shoulder on Gertrude) at this time; no change occurs on this screen yet.

3. Argument and Angles

As Hamlet storms into the room and asks his mother why she has sent for him, Polonius is still spying from behind the tapestry. The scene goes on with Hamlet arguing with his mother and Polonius

spying for a while until Polonius is discovered and then killed by Hamlet. At this time, we present our audience with an opportunity to select a new camera angle to be displayed on Screen #2. Now, they will have three options to choose from: (1) a prerecorded shot of Rosencrantz and Guildenstern also hiding behind the tapestry, (2) close-up, live feed of Polonius's slain body, and (3) a close-up on the hips of both Hamlet and his mother, conveying the somewhat incestuous nature of their relationship. *Screen #1 should still be displaying the audience's previous choice at this time.

4. Ghost Enters

The next camera-angle-choice moment should come on Screen #1 when the Ghost of Hamlet's father enters the scene. The choices are: (1) a shot from the ghost's first-person POV, (2) a prerecorded shot of Rosencrantz and Guildenstern behind the tapestry reacting to the scene in a slapstick manner, (3) a shot from Queen Gertrude's perspective, and (4) a shot from Hamlet's perspective.

5. Ghost Exits

When the Ghost exits the scene, this is our cue to bring up a selection of camera angle choices on Screen #2. These camera angles could consist of, but are not limited to (1) a top-down shot of the entire scene, (2) a low-angle shot of Hamlet and Gertrude from the bed, (3) a close up of the characters' mouths, and (4) a close-up of the characters' feet.

6. A Means to an End

Our final selection moment occurs on Screen #1 when Hamlet says "I must be cruel to be kind". At this time, we will display two choices on Screen #1: (1) a low-angle shot looking up at Hamlet from the floor by Polonius's body, and (2) a camera looking in at the scene through the doorway from which Hamlet will soon exit, dragging Polonius's body behind him. The scene ends when Hamlet exits – all film footage on the two projection screens should fade out. Figure 3 on the next page shows a depiction of how the entire stage might look while the prototype plays out.

Active light(s) over projection screen #1 signifies that it is time for the audience to select a new camera angle to be displayed on this screen

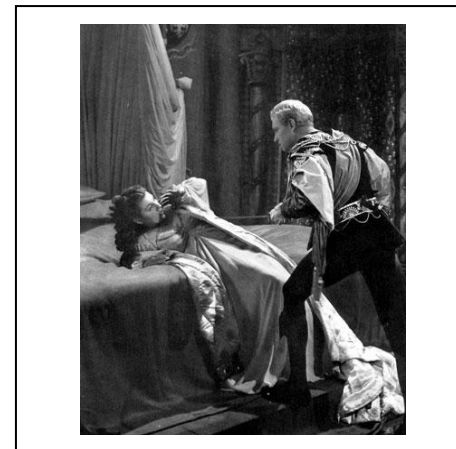
FIGURE 3
Depiction of the entire stage during prototype performance



Projection screen #1 displaying four different camera angle options out of which audience members will select one to be displayed on the full screen



Stage with live action occurring on it



Projection screen #2 displaying a previously-selected camera angle on the full screen

***NOTE:** For the purpose of this document, the projection screens have been increased in size so that the images displayed on them are clear. This diagram is in no way representative of the size of objects relative to each other or to the stage setup, which looks rather miniscule compared to everything else. In reality the projections will compliment the stage action, which should be the central point of focus during the performance.

III. Other Aspects of Prototype Design

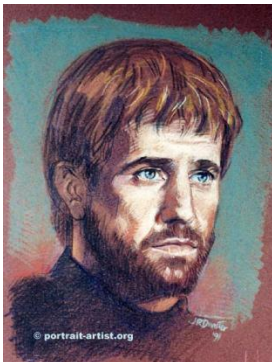
World and Tone

Shakespeare's *Hamlet* is set in Elsinore Castle in Denmark. The scene we have discussed using for our prototype specifically takes place in Queen Gertrude's bedchamber. *Hamlet* is a tragedy and

therefore has a dark tone to it. However, we are trying to incorporate elements of *Rosencrantz and Guildenstern are Dead* into our prototype, which can add a slightly more comedic feel to it. Since our performance will focus mainly on a scene from Shakespeare’s original play, we should try to stay consistent with the darker tone, but there may be some room for humor if we show Polonius’ death to be an indirect cause of Rosencrantz and Guildenstern’s rather comedic actions. This is something we will need to consider when testing the idea.

Characters/Actors

Hamlet - The Prince of Denmark, and son of Queen Gertrude and the late King Hamlet, and the nephew of the present king, Claudius. Hamlet is melancholy, bitter, and cynical, full of hatred for his uncle’s scheming and disgust for his mother’s sexuality. A reflective and thoughtful young man who has studied at the University of Wittenberg, Hamlet is often indecisive and hesitant, but at other times prone to rash and impulsive acts.



Gertrude - The Queen of Denmark, Hamlet’s mother, recently married to Claudius. Gertrude loves Hamlet deeply, but she is a shallow, weak woman who seeks affection and status more urgently than moral rectitude or truth.



Rosencrantz and Guildenstern - Two slightly bumbling courtiers, former friends of Hamlet from Wittenberg, who are summoned by Claudius and Gertrude to discover the cause of Hamlet’s strange behavior.



Polonius - The Lord Chamberlain of Claudius’s court, a pompous, conniving old man. Polonius is the father of Laertes and Ophelia.



Technology

At the moment, we are building this prototype to work with Beyond Question remotes. These remotes may not be the most elegant of interfaces (they look similar to TV remote controls) but they are relatively easy to use and easy to implement. If possible, we would like to theme the remotes to somehow fit our performance, but for right now our main concern is making sure they work with our idea. This technology should work well for an audience of any size, allowing each audience member to easily vote on which camera angle they would like to see simply by clicking the letter button on the remote that corresponds to the letter of the camera angle they wish to select on screen. The remotes send a wireless signal out to a PC program that will register each vote, display the results on screen, and then increase the selected video's size to full screen. Figure 4 below shows a visual of how we expect our technology to work.

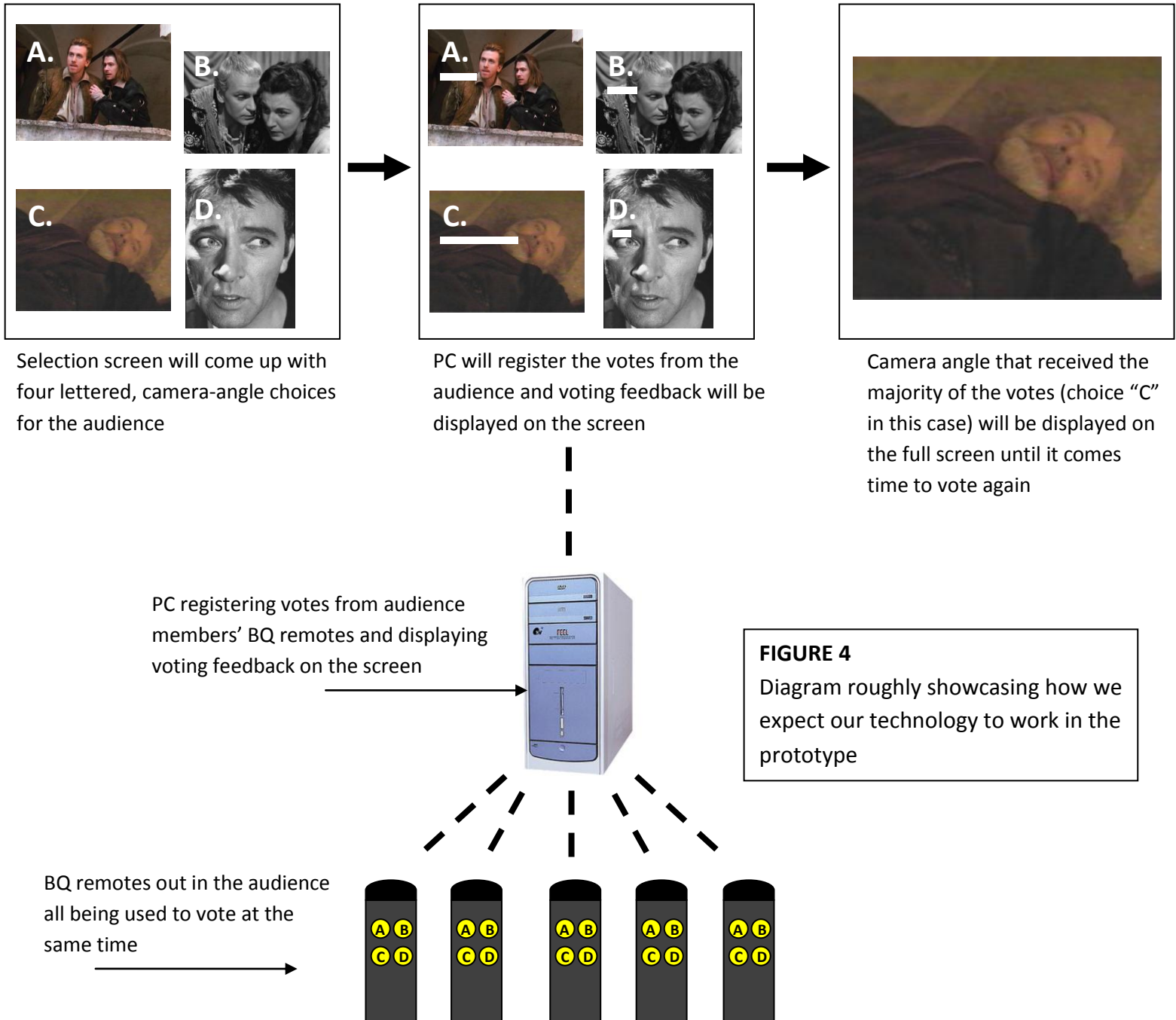


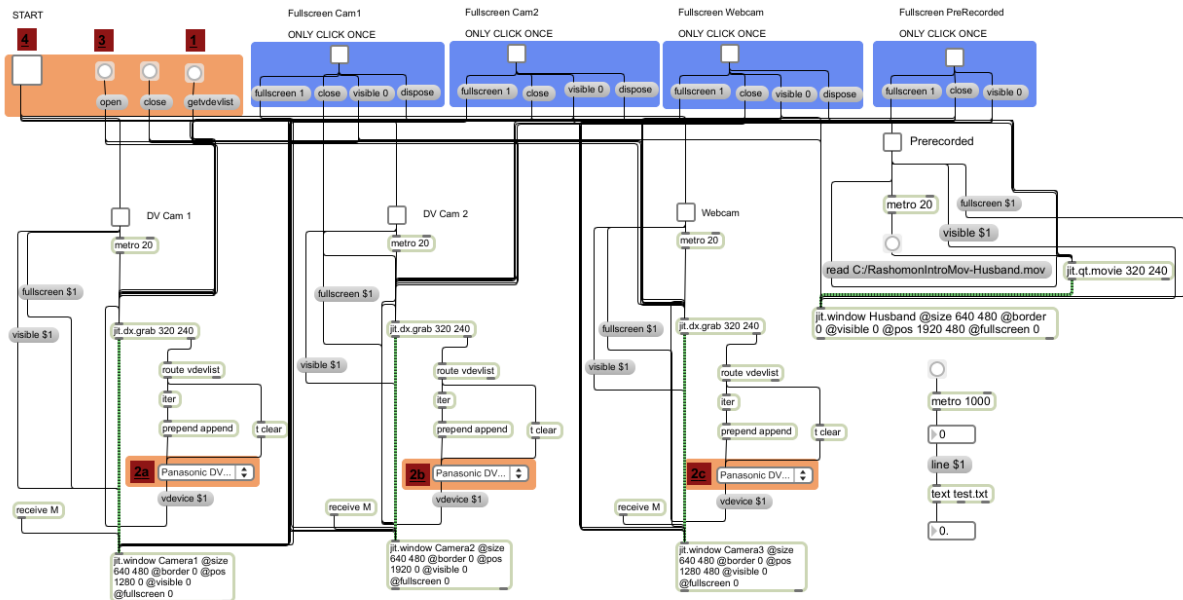
FIGURE 4
Diagram roughly showcasing how we expect our technology to work in the prototype

Max/MSP/Jitter:

We used Max/MSP/Jitter to act as a bridge between the BQ app that gather the voting data from the audience/BQ remotes, and dynamically change the videos shown during the performance. It is the primary controller of the video segments that make up the entire performance.

Max/MSP/Jitter (ie. MAX 5) is powerful audio/visual software that is used in many interactive/artistic performances and installations. The work we have done in Max can “easily” be expanded to work with the data we get from the sensors and modify various other attributes of this performance such as lights, video effects, etc.

Patch (*HamletReadLiveVideo_Compact.maxpat*):



- 1) Click getvdevlist
- 2) Select proper video feeds
- 3) Click open
- 4) Click Start

The patch can be run after a user has hooked up three input devices to their computer via firewire and USB. They can then open the patch and associate the individual buttons with an input device. There are instructions listed within the patch itself.

There is another patch that someone on the forums helped develop that continues the progression of where this patch needs to be developed. I have not taken a look at it but it could be useful for someone who wishes to continue this work (*HamletForumPatch*).

Progress:

Done:

- I was able to effectively get three different live camera feeds (two miniDV cameras and one webcam) ported into max and correctly aligned, with a piece of pre-recorded footage into a 2x2 grid.

Need to be implemented:

- Pulsing effect that occurs to let audience know it is the time to vote
- Transition between small videos and full-screen
- Optimization
 - o I worked on this patch as I was learning Max and I did not know about optimization at all. I assume that this patch will need a LOT of optimization to work correctly on the PC we have dedicated for this specific performance.
- Creating a step-by-step series of buttons that correspond with content on stage (ala Rashomon Script)
 - o This will make it easy for anyone to run the software/performance

Beyond Question

The Python code takes care of all the Beyond Question voting and writes the results into an output text file conveniently named "output.txt", from which Max can access them without problem and make decisions based on its contents.

The Python code itself is very simple, and requires that the Beyond Question receiver be connected to the computer before running the application. Once the application is running, the program will ask the operator to press a key to enter the voting process; it will then tally the BQ remotes' votes and notify the operator as well as output the results to the text file. The number of options to vote for, as well as the duration and number of voting rounds, are customizable by directly editing the code.