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|  | ***TEAM ONE*** | Consulting Lab TA: Melih Erdogan. | **Tony’s Theatre System** | **Background** |  |
|  1 | [Abidalrekab, Mohamed B.](https://banweb.pdx.edu/pls/oprd/bwlkosad.P_FacSelectAtypView?xyz=MTU2NDcwMg==) | **Team leader**, motion concepts for animation, assignment of mini-tasks to team members, integration. Final decisions about animation, control and software integration. He should work closely with the whole team on these. Organize regular meetings. |  |  |  |
| 2 | Choe, Sophie S. | **Motion Developer and Integrator.**Understand vision software of Tony’s team. Design optimal and probabilistic motion trajectories for robots. Animation. Relation of motion choice to vision. Help with vision, if necessary. |  |  |  |
| 3 | [McAdams, Brian](https://banweb.pdx.edu/pls/oprd/bwlkosad.P_FacSelectAtypView?xyz=MTUyMjk0Mw==) | **Vision Specialist and 3D print**Understand vision software of Tony’s team. Vision, motion, animation, 3D print. |  |  |  |
| 4 | [Montgomery, Casey P.](https://banweb.pdx.edu/pls/oprd/bwlkosad.P_FacSelectAtypView?xyz=NTA0OTY5) | **Music and Sound Specialist**Music, animation, sound, integration. Works closely with team leader on integration. |  | Software hardware midi |  |
| To do | 1. Learn the reports from Tony Muilenburg’s team in Spring 2015
2. Get all their software for robot theatre
3. Install the camera on the ceiling or use the existing camera. May be more than one should be used.
4. Test the Tony’s software with 3 Jimmy robots. You must put some color symbols on their heads to distinguish them. You must recognize x and y coordinates and theta rotation (orientation).
 | 1. Demonstrate a demo with all 3 robots similar to the one shown in past by Tony’s team. (this was for Quantum Debate).
2. Find on internet a 3D printed body(skin) of the robot Jimmy that plays the text writer robot from the play. TWR (Text Writing Robot). You may design your own body. 3D print it and put on the aluminum skeleton of the robot. This can be for any Jimmy, select one. This will be your main robot for experiments in your team. The skin should be for a masculine, tough, abusive character.
3. Read the scenario of the play. Your part is A. Other teams will work on parts B and C.
4. Obtain from Mathias Sunardi library of motions of Jimmy robot. Obtain his control software, both the general, robot-independent part and the lower Jimmy-related part.
5. Develop library of Jimmy motions for part A. You can share all motions (routines) with other teams.
6. Scene-by-scene, create a complete script and demonstrate it. It should use sound (recorded voices of robots). It should use recorded music to which robots dance.
7. Record videos with all your parts and motions/behaviors.
8. Demonstrate and videotape the complete part A.
9. GA or FL control developed in H1 an H2 may be integrated to the robot.
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|  | ***TEAM TWO*** | Consulting Lab TA: Melih Erdogan.Group elects the team leader | **Bhutada’s Theatre System** |  |  |
|  1 | Hakkoum, Saly, K | **Top Robot Theatre Integrator.**Software and animation, contact respective students from teams 1 and 3 about use of slide projector. Supervise integration.  |  |  |  |
| 2 | Sam Salin | **Top Animator.** Develop animation concepts. Realize animation for the play. |  | Interfacing, mechanical, software, AI, practical. |  |
|  3 | [Anderson, Jelon L.](https://banweb.pdx.edu/pls/oprd/bwlkosad.P_FacSelectAtypView?xyz=MTQwMTY3OA==) | **Software and animation Specialist and Librarian.**Software and animation, collect library of your motions, take motions from other projects. Take motions from Sunardi and Mekana. |  | Scripting, mentor, software prefers, drivers. |  |
| 4 | [Maddula, Surendra](https://banweb.pdx.edu/pls/oprd/bwlkosad.P_FacSelectAtypView?xyz=MTUyODM5MQ==) | **Music and Light Specialist**Music and lights, see Bhutada’s thesis. |  | Software, interest,HDL,micro |  |
| 5 | [Morgan, Justin T.](https://banweb.pdx.edu/pls/oprd/bwlkosad.P_FacSelectAtypView?xyz=MTMzMDQ2OA==) | **3D print specialist.**3D print. Motion, gesture design, sound, animation.  |  |  |  |
|  | 1. Learn the Master Thesis of Aditya Bhutada. Read carefully, think about adaptation to your play.
2. Get updated Bhutada software for robot theatre from Mathias Sunardi.
3. Get from him the box for music and lights.
4. Install the camera on the ceiling or use the existing camera. May be more than one should be used. Talk to teams 1, and 3 about this task that is common to all your projects.
5. Test the Aditya’s software with 3 Jimmy robots. You must put some color symbols on their heads to distinguish them. You must recognize x and y coordinates and theta rotation (orientation). Discuss with teams 1 and 3.
 | 1. Demonstrate a demo with all 3 robots similar to the one shown in past by Tony’s team. (this was for Quantum Debate) . It must demonstrate the whole power of Aditya’s software, sound, midi, lights and your 3 robots. Use ready Shows from iSOBOTS. Aditya software was originally written for Isobots and KHR-1s. Keep Isobots and KHR-1, but adapt to Jimmys.
2. Find on internet a 3D printed body(skin) of a robot Jimmy for the music composing robot. MCR – Music Composing Robot. You may design your own body, but it is of secondary importance unless somebody in your team knows Blender or similar tool. 3D print it and put on the aluminum skeleton of the robot. This can be for your Jimmy robot for the play. The music composing robot is a friendly, cowardly, artistic personality.
3. Read the scenario of the play. Your part is B. Other teams will work on parts A (team 1) and C (team 3).
4. Obtain from Mathias Sunardi library of motions of Jimmy robot. Obtain his control software, both the general, robot-independent part and the lower Jimmy-related part.
5. Develop library of Jimmy motions for part B. You can share all motions (routines) with other teams.
6. Scene-by-scene, create a complete script and demonstrate it. It should use sound (recorded voices of robots). It should use recorded music to which robots dance. You are the team responsible for using lights and sounds, sound/light synchronization, midi and all aspects allowed by Bhutada software.
7. Record videos with all your parts and motions/behaviors.
8. Demonstrate and videotape the complete part A.
9. GA or FL control developed in H1 an H2 may be integrated to the robot controller, otherwise you need another controller of your choice.
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|  | ***TEAM THREE*** | Consulting student: Mathias Sunardi.This team works directly with Mathias Sunardi *Group elects the team leader* | **Sunardi’s Theatre System** |  |  |
|  1 | Nauvin Ghorashian | **Motion specialist.**Gesture design, Animation and integration.Integration with sound. |  |  |  |
|  2 | [Channamallu, Aditya](https://banweb.pdx.edu/pls/oprd/bwlkosad.P_FacSelectAtypView?xyz=MTUyODYxMA==) | **3D print specialist.**3D print. Motion, gesture design, sound, animation. |  | software |  |
| 3 | [Vummidi, Dheeraj Chand](https://banweb.pdx.edu/pls/oprd/bwlkosad.P_FacSelectAtypView?xyz=MTUzMjIyMg==) | **Vision specialist**Vision algorithms, sensors, sensors.Animation and integration. |  | Sensors, vision, Arduino,aerial |  |
| 4 | Lin, Kuan Ju (Pref: Alvin) | **Animation librarian** Supervises library of motions.Incorporates videos and slide projector. Animation and integration. |  | software |  |
|  | 1. Learn the report of Mathias Sunardi and his software motion/theatre editor. Read carefully, think about adaptation to your play.
2. Get updated Sunardi’s software for robot theatre from Mathias Sunardi.
3. Get from him the box for music and lights. Share with teams 1 and 2.
4. Install the camera on the ceiling or use the existing camera. May be more than one should be used. Talk to teams 1, and 2 about this task that is common to all your projects.
5. Test the Sunardi’s software with 3 Jimmy robots. You must put some color symbols on their heads to distinguish them. You must recognize x and y coordinates and theta rotation (orientation). Discuss with teams 1 and 2.
 | 1. Demonstrate a demo with all 3 robots similar to the one shown in past by Tony’s team. (this was for Quantum Debate) . It must demonstrate the whole power of Sunardi’s software, sound, lights and your 3 robots.
2. Find on internet a 3D printed body(skin) of a robot Jimmy for the primadonna/ballerina robot. You may design your own body, but it is of secondary importance unless somebody in your team knows Blender or similar tool. 3D print it and put on the aluminum skeleton of the robot. This can be for your Jimmy robot for the play. BSM. Beautifully Singing Machine. Female singer and dancer. This is a Hollywood type ballerina, beautiful, proud and spoiled, she thinks that she can convince everybody about anything using her charms.
3. Read the scenario of the play. Your part is C. Other teams will work on parts A (team 1) and B (team 2).
4. Obtain from Mathias Sunardi library of motions of Jimmy robot. Obtain his control software, both the general, robot-independent part and the lower Jimmy-related part.
5. Develop library of Jimmy motions for part B. You can share all motions (routines) with other teams.
6. Incorporate the video of our previous graduation ceremony that you get from Mathias Sunardi.
7. Scene-by-scene, create a complete script and demonstrate it. It should use sound (recorded voices of robots). It should use recorded music to which robots dance. You are the team responsible for using lights and sounds, sound/light synchronization, midi and all aspects allowed by Sunardi’s software.
8. Record videos with all your parts and motions/behaviors.
9. Demonstrate and videotape the complete part A.
10. GA or FL control developed in H1 an H2 may be integrated to the robot.
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|  | ***TEAM FOUR*** | Consulting students: Rick Armstrong, Mathias Sunardi, Josh Sackos**This group has no homeworks**. Still you have to write unexpected quizzes. | **Mr Jeeves Robot** |  |  |
|  1 | [Fischer, Jeff](https://banweb.pdx.edu/pls/oprd/bwlkosad.P_FacSelectAtypView?xyz=MTUxNDg1OA==) |  |  | Motion control, hardware, closed-loop, design |  |
| 2 | [Kaminski, Forrest G.](https://banweb.pdx.edu/pls/oprd/bwlkosad.P_FacSelectAtypView?xyz=MTM3MDE0NA==) |  |  | ROS, intern, device drivers, feedback, has aluminum shop. |  |
| 3 | [Ball, Brendan](https://banweb.pdx.edu/pls/oprd/bwlkosad.P_FacSelectAtypView?xyz=MTU5NzA3Ng==) |  |  | Arm, leg, practical, reduce labor, software/mechanical |  |
| 4 | [Ward, Dakota](https://banweb.pdx.edu/pls/oprd/bwlkosad.P_FacSelectAtypView?xyz=MTQ0NzI4MQ==) |  |  | Software hardware |  |
|  | 1. This team includes all experienced engineers and robot builders with experience in robotics and design.
2. You will get many small, week-to-week tasks from Mathias and Mr. Rick Armstrong.
3. Grading will be based on the opinions of Mathias and Rick.
 | 1. **Aeternal fame to your team if you will finally complete this robot for the dean. Our previous robot was shown on Portland TV and was a big hit. I hope this will be even more famous.**
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|  | ***TEAM FIVE*** | Consulting Lab TA: Melih Erdogan. | **Copernicus Robot** |  |  |
| 1 | [Poanessa, Christiana R. (Pref: Tuna)](https://banweb.pdx.edu/pls/oprd/bwlkosad.P_FacSelectAtypView?xyz=MTI2ODkzOQ==) | **Team leader.** Physical design of the head, mechanical interface to InMoov body for easy exchange. Supervises assignment of tasks to team members and integration of components for the final demo. | Copernicus Robot Head |   |  |
| 2 | [Kammila, Venkata Saimohan](https://banweb.pdx.edu/pls/oprd/bwlkosad.P_FacSelectAtypView?xyz=MTUyODM5MA==) | **Animation and Kinect Specialist**Software for animation and interaction, Kinect slides and dialog design. Help other team members with software and integration. |  |  |  |
| 3 | [Diaz, Daniel L.](https://banweb.pdx.edu/pls/oprd/bwlkosad.P_FacSelectAtypView?xyz=MTMyMTMyNg==) | **Dialog, speech and sound specialist.**Design dialogs, create your own dialogs, text to speech, improvisation in text answers. Interface to Slide Projector. |  | Sensors, motors, interface, software prefers. |  |
|  | 1. Copernicus robot consists of the InMooV body with a new head built by Tuna.
2. It should be possible to quickly connect/disconnect the Copernicus head and replace it with InMooV head and vice versa.
3. Copernicus robot has two goals: (a) to teach about life and accomplishments of this great astronomer, (b) to be a guide to Electrical Engineering Department at PSU. You will use software and materials developed by previous students. Much can be also shared with Mr.Jeeves robot that is developed by team 4.
 | 1. Build robot head. Animate facial gestures. Learn from previous class projects like Bohr or Curie robots. This is however completely new mechanical design of the head.
2. Synchronize head to the text spoken.
3. Find on internet text-to-speech synthesizer for male voice of Copernicus.
4. Develop emotional hand, head and other gestures of the robot for his talks.
5. Integrate software for Copernicus (slide controlled) developed in Fall 2015. GA or FL control developed in H1 an H2 may be integrated to the robot.
6. Integrate other software for dialog from Mr. Jeeves.
7. Add new dialogs to software. Create database of dialogs and slides about ECE Department and professors.
8. Obtain from Perkowski slides and information for your data base.
9. GA or FL control developed in H1 an H2 may be integrated to the robot.
10. Present a complete demo of Copernicus using slides and Kinect to conduct dialogs about astronomy and PSU ECE Department.
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|  | ***TEAM SIX*** | Consulting Lab TA: Melih Erdogan. Team selects the leader. | **Arm Design for Einstein** |  |  |
| 1 |  [Alshami, Naser K.](https://banweb.pdx.edu/pls/oprd/bwlkosad.P_FacSelectAtypView?xyz=MTI3MDcyNA==) | Both members work on all tasks. It is very difficult now to assign specific tasks. |  |  Logic Programming, AI, Systems, hardware |  |
| 2 | Srijana Sapkota | Both members work on all tasks. It is very difficult now to assign specific tasks. |  |  |  |
|  | 1. Find Einstein Robot in the lab.
2. Design proportional right arm for him
3. The arm should have fingers, palm, elbow, shoulder, should be realistic. Learn from our previous arm designs. Read in detail Master Thesis of Khalid Alkhulyafi and other students reports about arm designing.
 | 1. Optimize speed, acceleration, strength. The arm should be able to hold and raise small items like an empty beer can.
2. Demonstrate that you can control every degree of freedom correctly from software.
3. Attach the arm to Einstein robot and demonstrate some complete behavior using software developed by the previous Einstein Robot Team.
4. Add touch sensors to various places on the arm, demonstrate Genetic Algorithm, Fuzzy Logic or both using the controller with these sensors as inputs and all DOF servos as outputs.
5. GA or FL control developed in H1 an H2 may be integrated to the robot.
6. Create the final demo and record video. It must include complete previous demo of Einstein but with hand gestures added in some reasonable way.
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|  | ***TEAM SEVEN*** | Consulting Lab TA: Melih Erdogan.Team selects the leader. | **Frankenstein Monster** |  |  |
| 1 | [Stasney, Randon G.](https://banweb.pdx.edu/pls/oprd/bwlkosad.P_FacSelectAtypView?xyz=MTM4MTY2MQ==) | **Leg Design and Animation Specialist**Leg Design for Frankenstein Monster (similar to one that exists). Animate various behaviors of the leg, with and without added sensors. |  | hardware |  |
| 2 | Pham, Thuan D. | **Mechanical Integration Specialist**Sensors. Add sensors to body, head, legs, etc that can be used for feedback for the controller. Motion Design for hands, head, legs, body and waving. Funny gestures. Emotional gestures. Dancing like gestures. |  | software |  |
| 3 | Lopez Garibay, Francisco J. | **Chief Animator**Develop concept for animation. Split animation tasks to other members. Supervise other team members on animation. Design funny behaviors of the entire robot that will include motion of all limbs and head, facial gestures. etc. Realize the script given for this robot. |  | hardware |  |
| 4 | [Bhattarai, Ram K.](https://banweb.pdx.edu/pls/oprd/bwlkosad.P_FacSelectAtypView?xyz=MTM5Mzc0MA==) | **Robot Vision Specialist.**Responsible for complete vision subsystem that may be taken from other project and integrated. Collaborate with other vision specialists in other teams. |  |  |  |
|   | 1. This is a continuation of the previous robot. Learn previous reports about Frankenstein Monster Robot.
2. Design the leg which is very similar and exactly the same proportionally to the leg designed by the previous team.
3. With help of Melih find the arms and palms/fingers of this robot in the lab and attach the back to the robot.
4. Attach your constructed leg to the robot.
5. Re-activate the waving mechanism built for this robot in the past.
 | 1. For the robot with integrated mechanically body, head, arms, palms, fingers, legs and waving motion, check correct operation of every degree of freedom separately and together.
2. Kinect camera looks at the audience. The audience controls robot’s behaviors with gestures. Reuse and integrate the existing software that we developed in previous classes.
3. Add sensors to the robot on the body, head, etc.
4. Write software for a GA , FL or neural controller that will demonstrate the operation of the feedback on the robot. Your choice of the concept. Relate it to homeworks 1 and 2 of the team members.
5. Look to reports on this robot on my 478 class webpage.
6. Realize motions and spoken texts for the scene given for this project on my webpage.
7. Create the final demo. Do the video.
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|  | ***TEAM EIGHT*** | Consulting Lab TA: Melih Erdogan.   | **Marie Curie Robot** |  |  |
| 1 | [Elliott, Andrew M. (Pref: Andy)](https://banweb.pdx.edu/pls/oprd/bwlkosad.P_FacSelectAtypView?xyz=MTQxMzAwMA==) | **Right hand specialist.**Right arm assembly, demonstration of correct behavior for every degree of freedom, every finger, elbow, etc. Demonstrate various shoulder behaviors. |  |  |  |
| 2 | [Myers, Lucas A.](https://banweb.pdx.edu/pls/oprd/bwlkosad.P_FacSelectAtypView?xyz=MTI3Njk1MQ==) | **Team Leader = Script and Animation Specialist.**Plan division of tasks for final demo.Assign tasks to other team members.Realize the script of behavior of the first act from play Quantum Debate. Make plan with deadlines for each team member to realize the final demo. Check with time that it is realized. |  |  |  |
| 3 | [Dunn,](https://banweb.pdx.edu/pls/oprd/bwlkosad.P_FacSelectAtypView?xyz=MTA5MDg1Ng==) Brian M. | **Motion Integration Specialist.**Integration of all old and new motions. Demonstrate various left shoulder behaviors. Demonstrate body bending, leg kicking and all old behaviors. Look to reports of Khalid Alkhulyafi and previous teams. |  |  |  |
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|  | 1. Learn about our previous designs of arms for Marie Curie and InMooV.
2. 3D print the arm. This should include the shoulder, fingers, everything. Ask Melih for help and explanation. Consult with Melih as many parts are already printed.
3. Assembly the arm.
4. Demonstrate that you can control every degree of freedom from software. may use software developed by previous teams.
5. Demonstrate software that uses sensors, the arm and the control based on Fuzzy Logic or GA, or whatever method you want, if consulted with Dr. Perkowski.
 | 1. Attach the arm to the Marie Curie robot and demonstrate the behavior.
2. Resurrect the motions of head, body and other arm of Marie Curie robot, as it was done in past.
3. Look to reports on this robot on my 478 class webpage.
4. Realize motions and spoken texts for the first stage of the Quantum Debate performance play.
5. Create the final demo. Do the video.
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|  |  | *Please remember that the tasks for each team member above are only my proposals based on my past experiences and my expected experiences of students.* *Every team may modify them according to talents, skills and preferences of team members.* *Graduate students should take more advanced tasks than undergraduates.*  |  |  |  |