Experiment:06 –

Implementation of artificial intelligence movement to character

AIM:

To implement AI concept to actor for a random movement .

ALGORITHM:

1. Create a Character Blueprint:
    - In the Content Browser, right-click in the desired folder.
    - Select Create Basic Asset > Blueprint Class.
    - Choose the appropriate parent class for your AI character (e.g., Character or Pawn).
    - Name the Blueprint (e.g., "AICharacter") and click Create.
2. Create a Blackboard:
    - In the Content Browser, right-click in the desired folder.
    - Select Create Basic Asset > AI > Blackboard.
    - Name the Blackboard (e.g., "AIBlackboard") and click Create.
3. Open the Behavior Tree editor:
    - In the Content Browser, find the Blackboard asset you just created.
    - Right-click the Blackboard asset and select Create > Behavior Tree.
    - Name the Behavior Tree (e.g., "AIBehaviorTree") and click Create.
    - Double-click the Behavior Tree asset to open it in the Behavior Tree editor.

4. Create Behavior Tree nodes:
    - In the Behavior Tree editor, right-click in the graph and search for and add the following nodes:
        - "Selector" node: Controls the execution of child nodes.
        - "Service" node: Monitors and updates values in the Blackboard.
        - "Sequence" node: Executes child nodes in sequential order.
        - "Random" decorator: Randomly selects a child node to execute.
        - "Move To" task: Moves the AI character to a specified location.
    - Connect the nodes to create the desired behavior flow. For example:
        - Connect the Selector node to the Service and Sequence nodes.
        - Connect the Random decorator to the Sequence node.
        - Connect the Move To task to one of the child nodes of the Random decorator.
5. Set up the Blackboard:
    - Open the AIBlackboard asset.
    - In the Blackboard editor, define the necessary keys for storing data, such as:
        - Vector keys: for storing target locations.
        - Bool keys: for storing condition flags.
    - Save the AIBlackboard asset.
6. Set up the AI character Blueprint:
    - Open the AICharacter Blueprint.
    - In the Blueprint editor, find the Components panel.
    - Add an AI Controller component to the AICharacter Blueprint.
    - In the Details panel, under the AI Controller section, set the AIController Class to the desired AI controller class (e.g., AIController).
    - Save the AICharacter Blueprint.

7. Set the AI controller and behavior tree:

- Open the AIController Blueprint.
- In the Blueprint editor, locate the Event Begin Play event.
- Drag off the execution line and search for "Possess".
- In the Possess node, select the AICharacter Blueprint you created.
- Drag off the AICharacter reference and search for "Use Blackboard".
- Connect the output of the Use Blackboard node to the AIController's Blackboard property.
- In the Blackboard property, select the AIBlackboard asset you created.
- Drag off the AICharacter reference again and search for "Run Behavior Tree".
- Connect the output of the Run Behavior Tree node to the AIController's Behavior Tree property.
- In the Behavior Tree property, select the AIBehaviorTree asset you created.
- Save the AIController Blueprint.

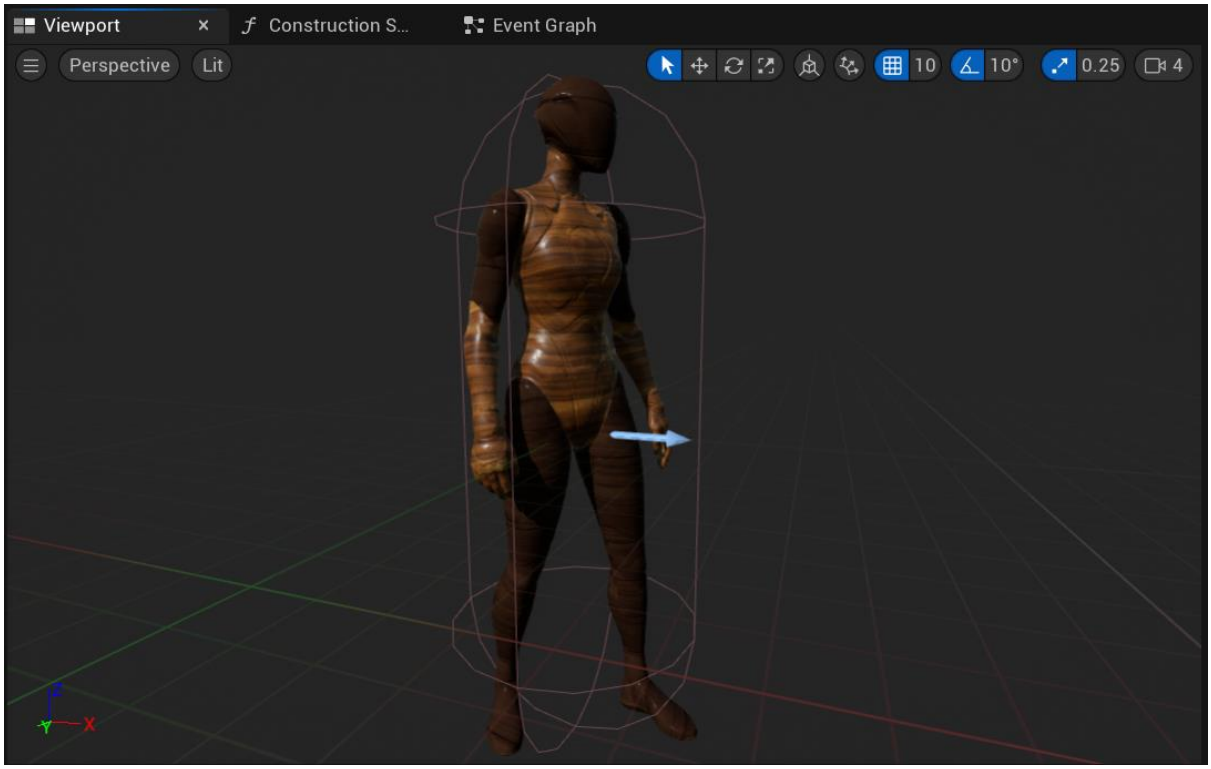
8. Set up the NavMesh and boundaries:

- Place a NavMeshBoundsVolume in your level to define the boundaries for the AI character's movement.

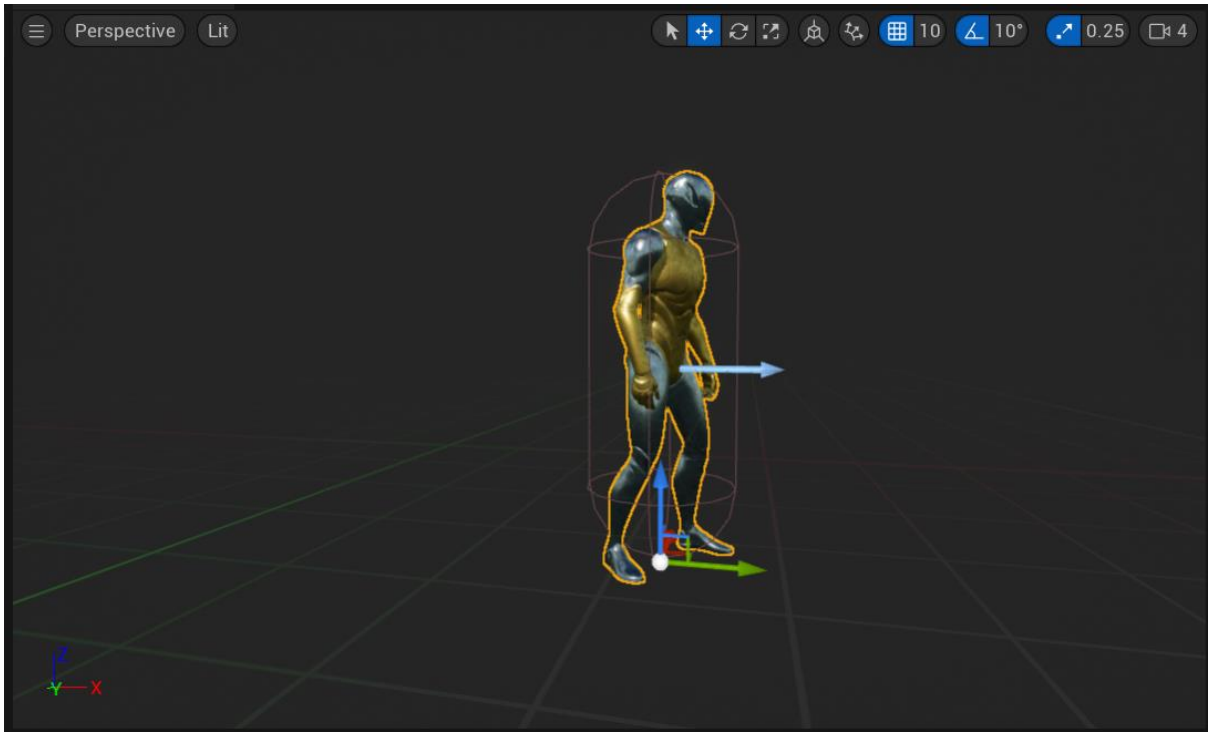
- Adjust the size and position of the NavMeshBoundsVolume to cover the desired playable area.

OUTPUT:

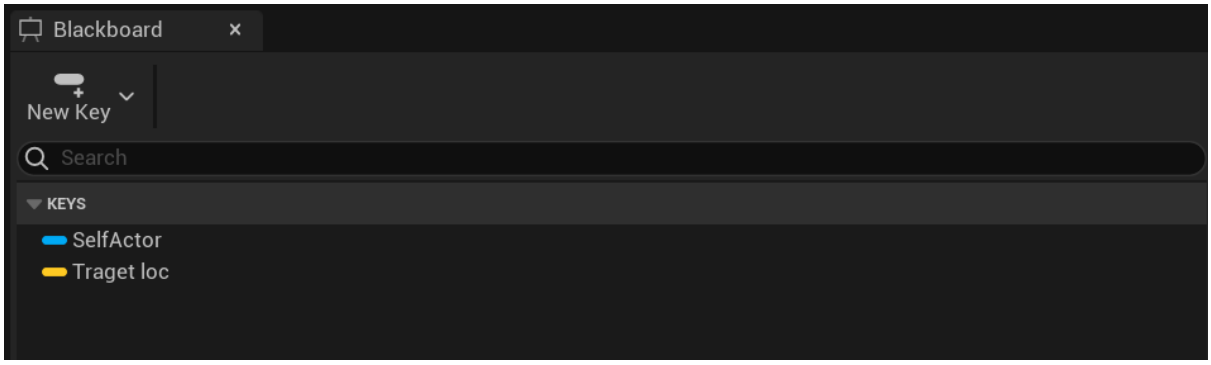
PLAYER MESH



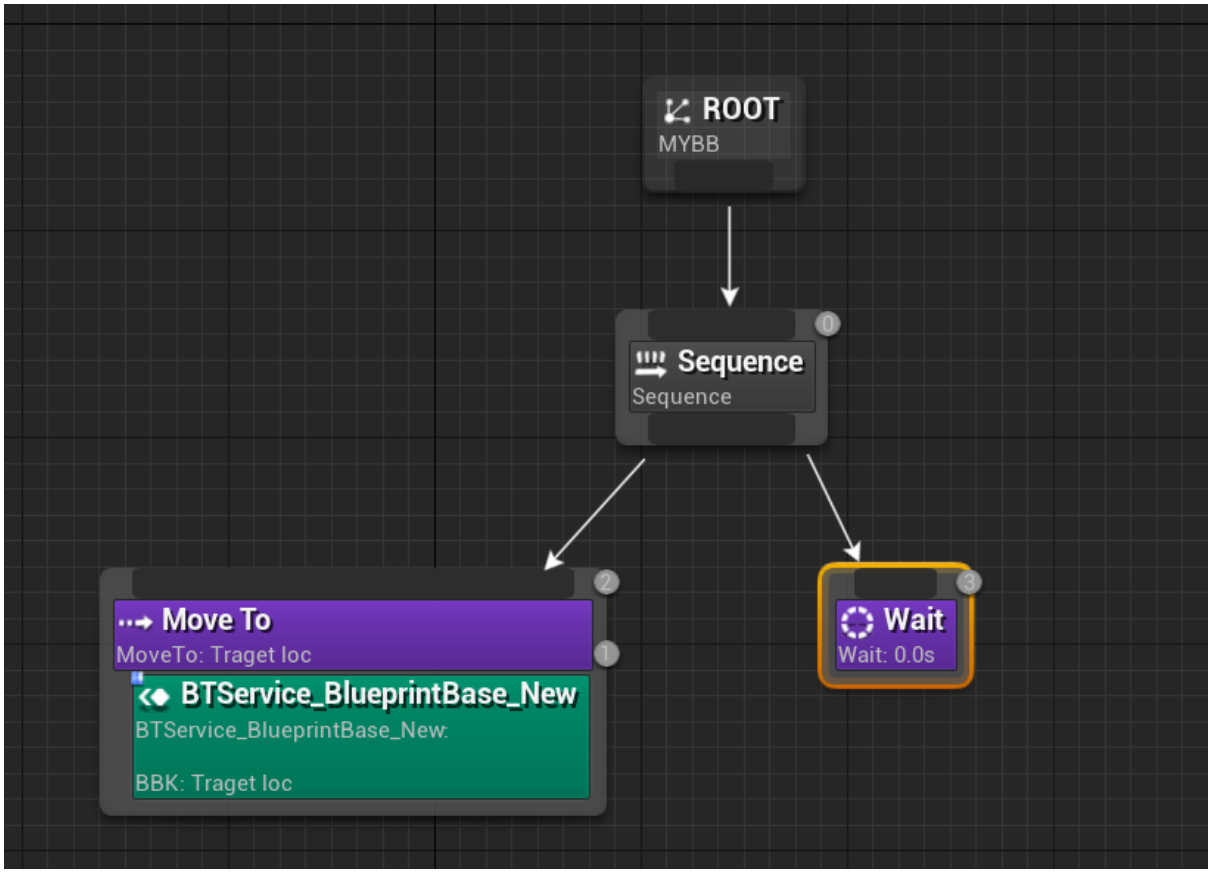
AI PLAYER MESH



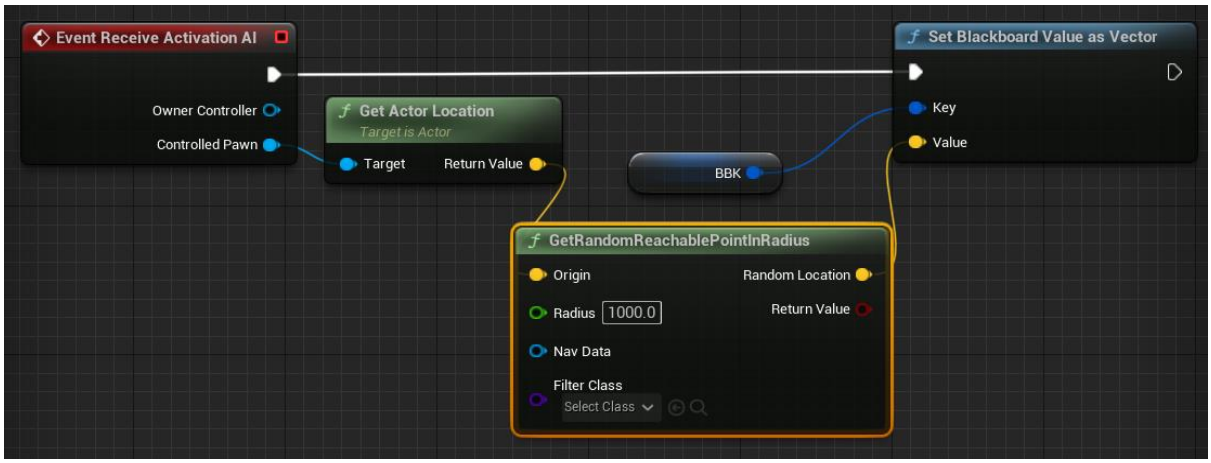
AI BLACKBOARD FOR KEY CREATION



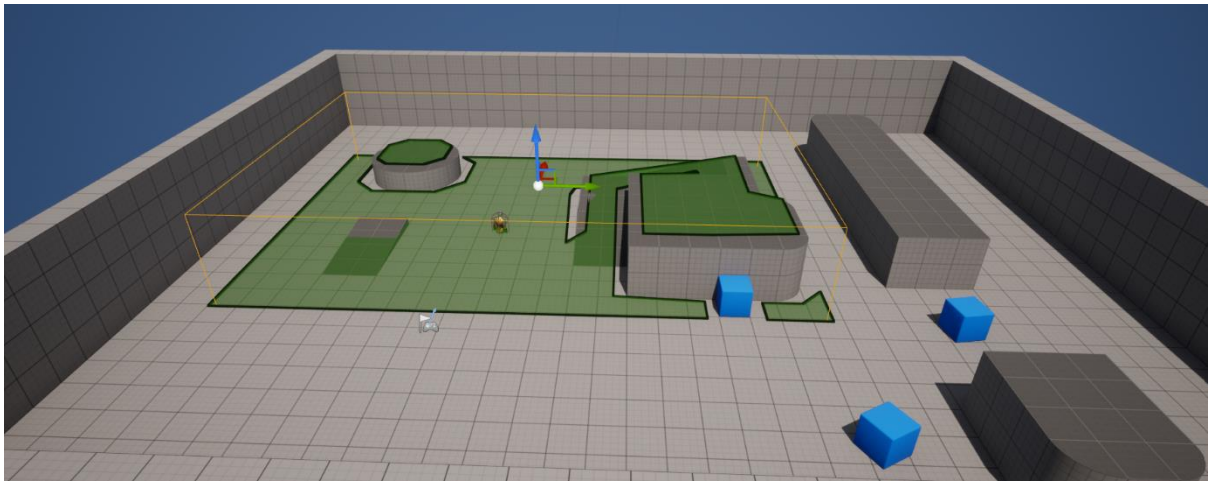
BEHAVIOR TREE



BLACKBOARD EVENT GRAPH



GAME NAVMESHBOUNDVOLUME



IN PLAY MODE

RESULT:

Thus, AI concept to actor for a random movement is implement.