

BlockGateAND.java

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package net.minecraft.src;

// Created by MoareAI

import java.util.Random;

public class BlockGateAND extends Block
{
    //Class parameters
    protected BlockGateAND(int id, int texture)
    {
        super(id, texture, Material.circuits);
        setBlockBounds(0.0F, 0.0F, 0.0F, 1.0F, 0.125F, 1.0F);
        setLightValue(0.625F);
    }

    //Use render types
    public boolean renderAsNormalBlock()
    {
        return false;
    }

    //Block texture
    public int getBlockTextureFromSideAndMetadata(int side, int meta)
    {
        if(meta <= 3)
            return blockIndexInTexture = mod_LogicalGates.TextureOROff;
        else
            return blockIndexInTexture = mod_LogicalGates.TextureOROn;
    }

    //Block type (preset)
    public int getRenderType()
    {
        return mod_LogicalGates.RenderGate;
    }

    //The function. Sets metadata to +4 when the gate is to be turned on
    public void onNeighborBlockChange(World world, int x, int y, int z, int id)
    {
        if(!canBlockStay(world, x, y, z))
        {
            dropBlockAsItem(world, x, y, z, world.getBlockMetadata(x, y, z));
            world.setBlockWithNotify(x, y, z, 0);
            return;
        }
        int meta = world.getBlockMetadata(x, y, z);
        boolean InputA = func_InputA(world, x, y, z, meta);
        boolean InputB = func_InputB(world, x, y, z, meta);
        boolean InputC = func_InputC(world, x, y, z, meta);
        boolean WireA = isPowerConnectedA (world, x, y, z, meta);
        boolean WireB = isPowerConnectedB (world, x, y, z, meta);
        boolean WireC = isPowerConnectedC (world, x, y, z, meta);
        if((InputA || !WireA) && (InputB || !WireB) && (InputC || !WireC))
        {
            if (meta <= 3)
                world.setBlockMetadataWithNotify(x, y, z, meta+4);
        } else
        {
            if (meta > 3)
                world.setBlockMetadataWithNotify(x, y, z, meta-4);
        }
        world.scheduleBlockUpdate(x, y, z, blockID, 0);
    }
}
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//Signal out
public boolean isPoweringTo(IBlockAccess iblockaccess, int x, int y, int z, int
side)
{
    int meta = iblockaccess.getBlockMetadata(x, y, z);
    if(meta == 4)
        return side == 3;
    if(meta == 5)
        return side == 4;
    if(meta == 6)
        return side == 2;
    if(meta == 7)
        return side == 5;
    else
        return false;
}

//Signal in
//Left
private boolean func_InputA(World world, int x, int y, int z, int meta)
{
    int side = meta%4;
    if (side == 0)
        return world.isBlockIndirectlyProvidingPowerTo(x-1, y, z, 4) ||
((world.isBlockIndirectlyProvidingPowerTo(x-1, y-1, z+1, 3) ||
world.isBlockIndirectlyProvidingPowerTo(x-1, y-1, z-1, 2)) && world.getBlockId(x-1, y,
z) == Block.redstoneWire.blockID);
    if (side == 1)
        return world.isBlockIndirectlyProvidingPowerTo(x, y, z-1, 2) ||
((world.isBlockIndirectlyProvidingPowerTo(x-1, y-1, z-1, 4) ||
world.isBlockIndirectlyProvidingPowerTo(x+1, y-1, z-1, 5)) && world.getBlockId(x, y, z-
1) == Block.redstoneWire.blockID);
    if (side == 2)
        return world.isBlockIndirectlyProvidingPowerTo(x+1, y, z, 5) ||
((world.isBlockIndirectlyProvidingPowerTo(x+1, y-1, z-1, 3) ||
world.isBlockIndirectlyProvidingPowerTo(x+1, y-1, z+1, 2)) && world.getBlockId(x+1, y,
z) == Block.redstoneWire.blockID);
    if (side == 3)
        return world.isBlockIndirectlyProvidingPowerTo(x, y, z+1, 3) ||
((world.isBlockIndirectlyProvidingPowerTo(x+1, y-1, z+1, 4) ||
world.isBlockIndirectlyProvidingPowerTo(x-1, y-1, z+1, 5)) && world.getBlockId(x, y,
z+1) == Block.redstoneWire.blockID);
    return false;
}

//Back
private boolean func_InputB(World world, int x, int y, int z, int meta)
{
    int side = meta%4;
    if (side == 0)
        return world.isBlockIndirectlyProvidingPowerTo(x, y, z+1, 3) ||
((world.isBlockIndirectlyProvidingPowerTo(x+1, y-1, z+1, 4) ||
world.isBlockIndirectlyProvidingPowerTo(x-1, y-1, z+1, 5)) && world.getBlockId(x, y,
z+1) == Block.redstoneWire.blockID);
    if (side == 1)
        return world.isBlockIndirectlyProvidingPowerTo(x-1, y, z, 4) ||
((world.isBlockIndirectlyProvidingPowerTo(x-1, y-1, z+1, 3) ||
world.isBlockIndirectlyProvidingPowerTo(x-1, y-1, z-1, 2)) && world.getBlockId(x-1, y,
z) == Block.redstoneWire.blockID);
    if (side == 2)
        return world.isBlockIndirectlyProvidingPowerTo(x, y, z-1, 2) ||
((world.isBlockIndirectlyProvidingPowerTo(x-1, y-1, z-1, 4) ||
world.isBlockIndirectlyProvidingPowerTo(x+1, y-1, z-1, 5)) && world.getBlockId(x, y, z-

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1) == Block.redstoneWire.blockID);
    if (side == 3)
        return world.isBlockIndirectlyProvidingPowerTo(x+1, y, z, 5) ||
((world.isBlockIndirectlyProvidingPowerTo(x+1, y-1, z-1, 3) ||
world.isBlockIndirectlyProvidingPowerTo(x+1, y-1, z+1, 2)) && world.getBlockId(x+1, y,
z) == Block.redstoneWire.blockID);
        return false;
    }

    //Right
    private boolean func_InputC(World world, int x, int y, int z, int meta)
    {
        int side = meta%4;
        if (side == 0)
            return world.isBlockIndirectlyProvidingPowerTo(x+1, y, z, 5) ||
((world.isBlockIndirectlyProvidingPowerTo(x+1, y-1, z-1, 3) ||
world.isBlockIndirectlyProvidingPowerTo(x+1, y-1, z+1, 2)) && world.getBlockId(x+1, y,
z) == Block.redstoneWire.blockID);
            if (side == 1)
                return world.isBlockIndirectlyProvidingPowerTo(x, y, z+1, 3) ||
((world.isBlockIndirectlyProvidingPowerTo(x+1, y-1, z+1, 4) ||
world.isBlockIndirectlyProvidingPowerTo(x-1, y-1, z+1, 5)) && world.getBlockId(x, y,
z+1) == Block.redstoneWire.blockID);
                if (side == 2)
                    return world.isBlockIndirectlyProvidingPowerTo(x-1, y, z, 4) ||
((world.isBlockIndirectlyProvidingPowerTo(x-1, y-1, z+1, 3) ||
world.isBlockIndirectlyProvidingPowerTo(x-1, y-1, z-1, 2)) && world.getBlockId(x-1, y,
z) == Block.redstoneWire.blockID);
                    if (side == 3)
                        return world.isBlockIndirectlyProvidingPowerTo(x, y, z-1, 2) ||
((world.isBlockIndirectlyProvidingPowerTo(x-1, y-1, z-1, 4) ||
world.isBlockIndirectlyProvidingPowerTo(x+1, y-1, z-1, 5)) && world.getBlockId(x, y, z-
1) == Block.redstoneWire.blockID);
                        return false;
                    }
            }

    //Checks for Redstone Wire connection
    //Left
    private boolean isPowerConnectedA(IBlockAccess iblockaccess, int x, int y, int z,
int meta)
    {
        int side = meta%4;
        if (side == 0)
            return BlockRedstoneWire.isPowerProviderOrWire(iblockaccess, x-1, y, z);
        if (side == 1)
            return BlockRedstoneWire.isPowerProviderOrWire(iblockaccess, x, y, z-1);
        if (side == 2)
            return BlockRedstoneWire.isPowerProviderOrWire(iblockaccess, x+1, y, z);
        if (side == 3)
            return BlockRedstoneWire.isPowerProviderOrWire(iblockaccess, x, y, z+1);
        return false;
    }

    //Back
    private boolean isPowerConnectedB(IBlockAccess iblockaccess, int x, int y, int z,
int meta)
    {
        int side = meta%4;
        if (side == 0)
            return BlockRedstoneWire.isPowerProviderOrWire(iblockaccess, x, y, z+1);
        if (side == 1)
            return BlockRedstoneWire.isPowerProviderOrWire(iblockaccess, x-1, y, z);
        if (side == 2)
            return BlockRedstoneWire.isPowerProviderOrWire(iblockaccess, x, y, z-1);

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        if (side == 3)
            return BlockRedstoneWire.isPowerProviderOrWire(iblockaccess, x+1, y, z);
        return false;
    }

    //Right
    private boolean isPowerConnectedC(IBlockAccess iblockaccess, int x, int y, int z,
int meta)
    {
        int side = meta%4;
        if (side == 0)
            return BlockRedstoneWire.isPowerProviderOrWire(iblockaccess, x+1, y, z);
        if (side == 1)
            return BlockRedstoneWire.isPowerProviderOrWire(iblockaccess, x, y, z+1);
        if (side == 2)
            return BlockRedstoneWire.isPowerProviderOrWire(iblockaccess, x-1, y, z);
        if (side == 3)
            return BlockRedstoneWire.isPowerProviderOrWire(iblockaccess, x, y, z-1);
        return false;
    }

    //Rotation when placed
    public void onBlockPlacedBy(World world, int x, int y, int z, EntityLiving
entityliving)
    {
        int meta = ((MathHelper.floor_double(((double)((entityliving.rotationYaw * 4F) /
360F) + 0.5D) & 3) + 2) % 4;
        world.setBlockMetadataWithNotify(x, y, z, meta);
        int id = blockID;
        onNeighborBlockChange(world, x, y, z, id);
    }

    //Notifies neighbor blocks when added
    public void onBlockAdded(World world, int x, int y, int z)
    {
        world.notifyBlocksOfNeighborChange(x+1, y, z, blockID);
        world.notifyBlocksOfNeighborChange(x-1, y, z, blockID);
        world.notifyBlocksOfNeighborChange(x, y, z+1, blockID);
        world.notifyBlocksOfNeighborChange(x, y, z-1, blockID);
        world.notifyBlocksOfNeighborChange(x, y-1, z, blockID);
        world.notifyBlocksOfNeighborChange(x, y+1, z, blockID);
    }

    //Dropped
    public int idDropped(int i, Random random)
    {
        return mod_LogicalGates.ItemAND.shiftedIndex;
    }

    //Tests if the block is solid
    public boolean isOpaqueCube()
    {
        return false;
    }

    //Tests if the block may provide power. Used for drawing Redstone Wires.
    public boolean canProvidePower()
    {
        return true;
    }

    //Tests where the block may be placed
    public boolean canPlaceBlockAt(World world, int x, int y, int z)
    {

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        if(!world.isBlockOpaqueCube(x, y - 1, z))
            return false;
        else
            return super.canPlaceBlockAt(world, x, y, z);
    }

    //Tests if the block may stay in the world
    public boolean canBlockStay(World world, int x, int y, int z)
    {
        if(!world.isBlockOpaqueCube(x, y - 1, z))
            return false;
        else
            return super.canBlockStay(world, x, y, z);
    }
}
```