

The Shakey's world

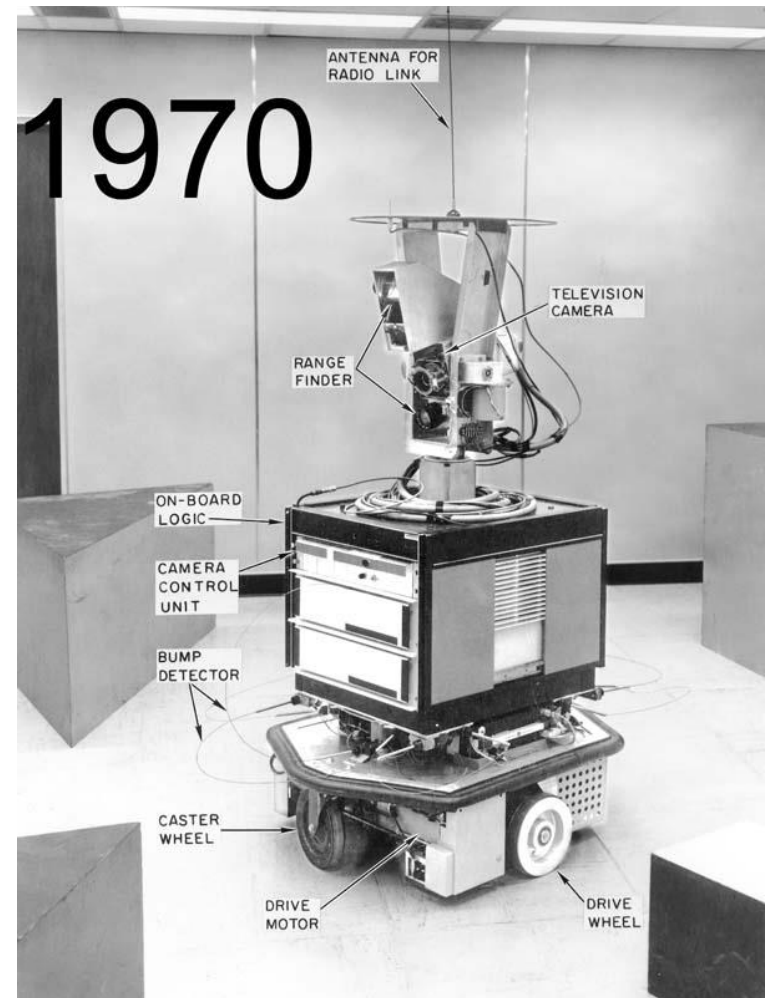
STRIPS

Stanford Robot controlled by STRIPS;

At the time planner could find plans beyond robots abilities;

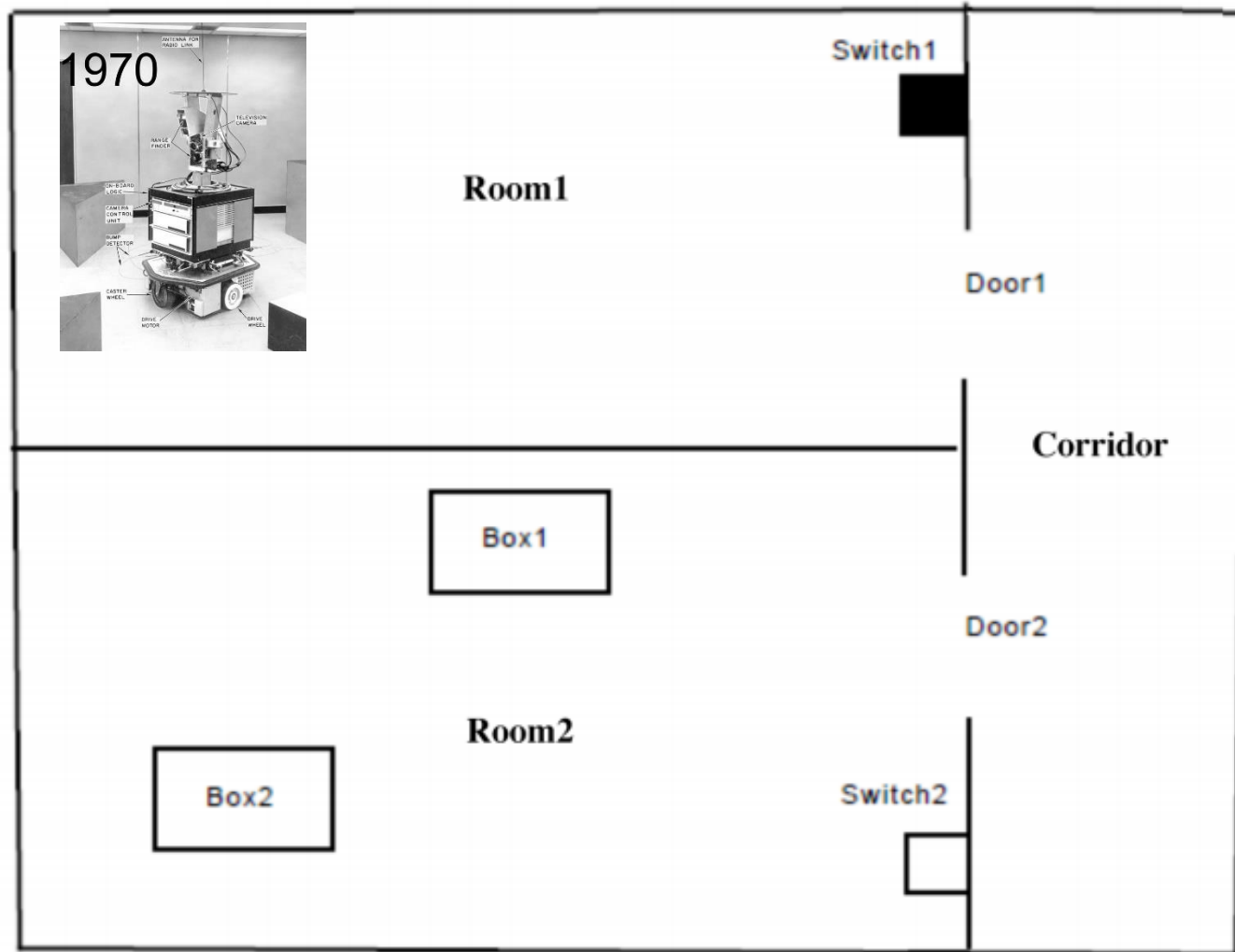
Actions:

- Move;
- Pushing movable objects;
- Climb onto and down from objects;
- Turn light switches on and off.



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STRIPS



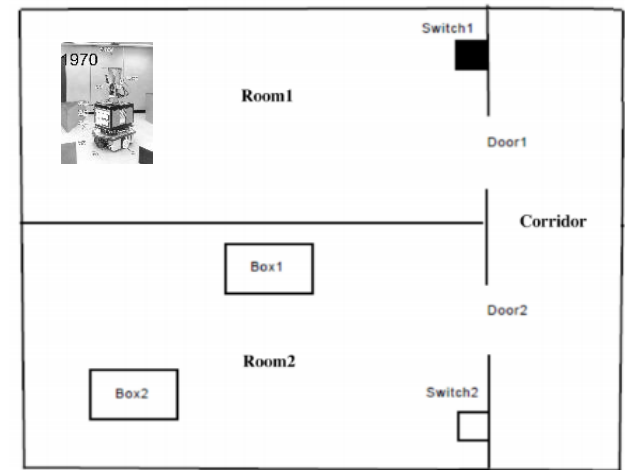
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INITIAL STATE:

```
(init:  
  (on Shakey Floor) (at Shakey START) (in START Room1)  
  (box Box1) (at Box1 BX1) (in BX1 Room2) (box Box2)  
  (at Box2 BX2) (in BX2 Room2) (in Door1 Room1)  
  (in Door1 Corridor) (in Switch1 Room1)  
  (not (turnedOn Switch1)) (in Door2 Room2)  
  (in Door2 Corridor) (in Switch2 Room2)  
  (turnedOn Switch2)  
)
```

GOAL: (:goal (at Box2 Switch1))

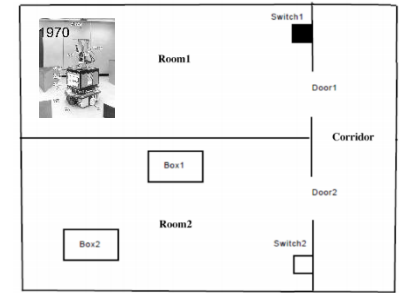


OBJECTS:

```
(:objects  
  Shakey Floor Corridor START  
  Room1 Room2  
  Door1 Door2  
  Switch1 Switch  
  Box1 Box2  
  BX1 BX2  
)
```

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PREDICATES: Is x at location y? Is x on y? Is x a box? Is x turned On?

(:predicates (at ?x ?y) (on ?x ?y) (in ?x ?y) (box ?x) (turnedOn ?x)) }

ACTIONS:

(:action Go

:parameters (?x ?y ?r)

:precondition (and (on Shakey Floor) (at Shakey ?x) (in ?x ?r) (in ?y ?r))

:effect (and (at Shakey ?y) (not (at Shakey ?x)))

)

(:action Push

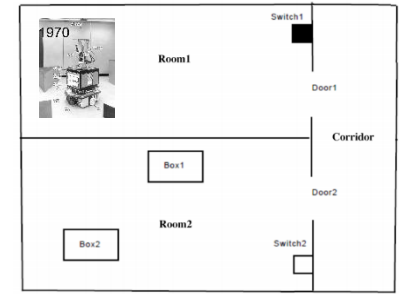
:parameters (?b ?x ?y ?r)

:precondition (and (on Shakey Floor) (at Shakey ?x) (box ?b) (at ?b ?x) (in ?x ?r) (in ?y ?r))

:effect (and (at Shakey ?y) (at ?b ?y) (not (at Shakey ?x)) (not (at ?b ?x)))

)

STRIPS



```
(:action ClimbUp
```

```
:parameters (?x ?b)
```

```
:precondition (and (on Shakey Floor) (at Shakey ?x) (at ?b ?x) (box ?b))
```

```

:effect (and (on Shakey ?b) (not (on Shakey Floor)))

```

)

```
(:action ClimbDown
```

```
:parameters (?b)
```

```
:precondition (and (on Shakey ?b) (box ?b))
```

```

:effect (and (on Shakey Floor) (not (on Shakey ?b)))

```

)

```
(:action TurnOn
```

```
:parameters (?s ?b)
```

```
:precondition (and (on Shakey ?b)
                    (box ?b) (at ?b ?s))
```

```
:effect (turnedOn ?s)
```

)

```
(:action TurnOff
```

```
:parameters (?s ?b)
```

```
:precondition (and (on Shakey ?b)
                    (box ?b) (at ?b ?s))
```

```
:effect (not (turnedOn ?s))
```

)

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Generated Plan:

1. (go start door1 room1)
2. (go door1 door2 corridor)
3. (go door2 bx2 room2)
4. (push box2 bx2 door2 room2)
5. (push box2 door2 door1 corridor)
6. (push box2 door1 switch1 room1)

