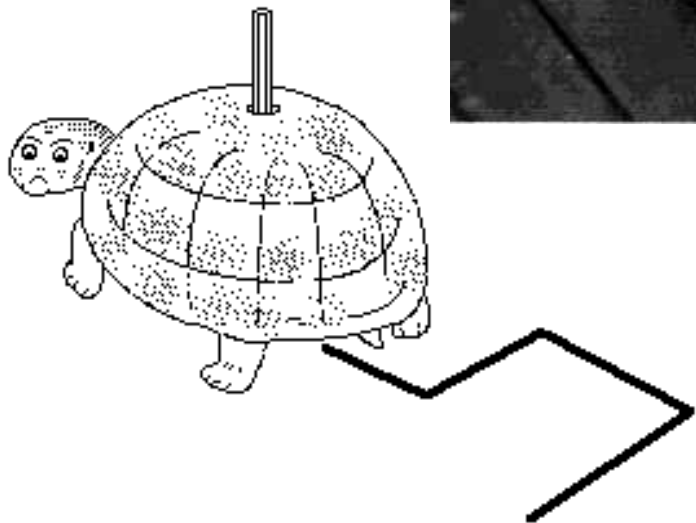


Introduction to LOGO



BJ Gleason

History of LOGO

Developed by Papert at MIT in 1967

Designed to

- Introduce children to programming

- Develop better thinking skills

- Teaching of mathematical ideas

- Be easy to learn, use, and read

- Based on LISP

"A language for learning."

Classic Book: Mindstorms

Basis for Lego Robotics

Theory behind LOGO

A. Children learn language in an orderly, step-by-step fashion. They learn word concepts, and how to combine words into simple sentences.

B. Logo and language can be taught in small increments, beginning with concrete and graphic things, and can progress to words and more abstract concepts.

Downloading LOGO

MSW Logo

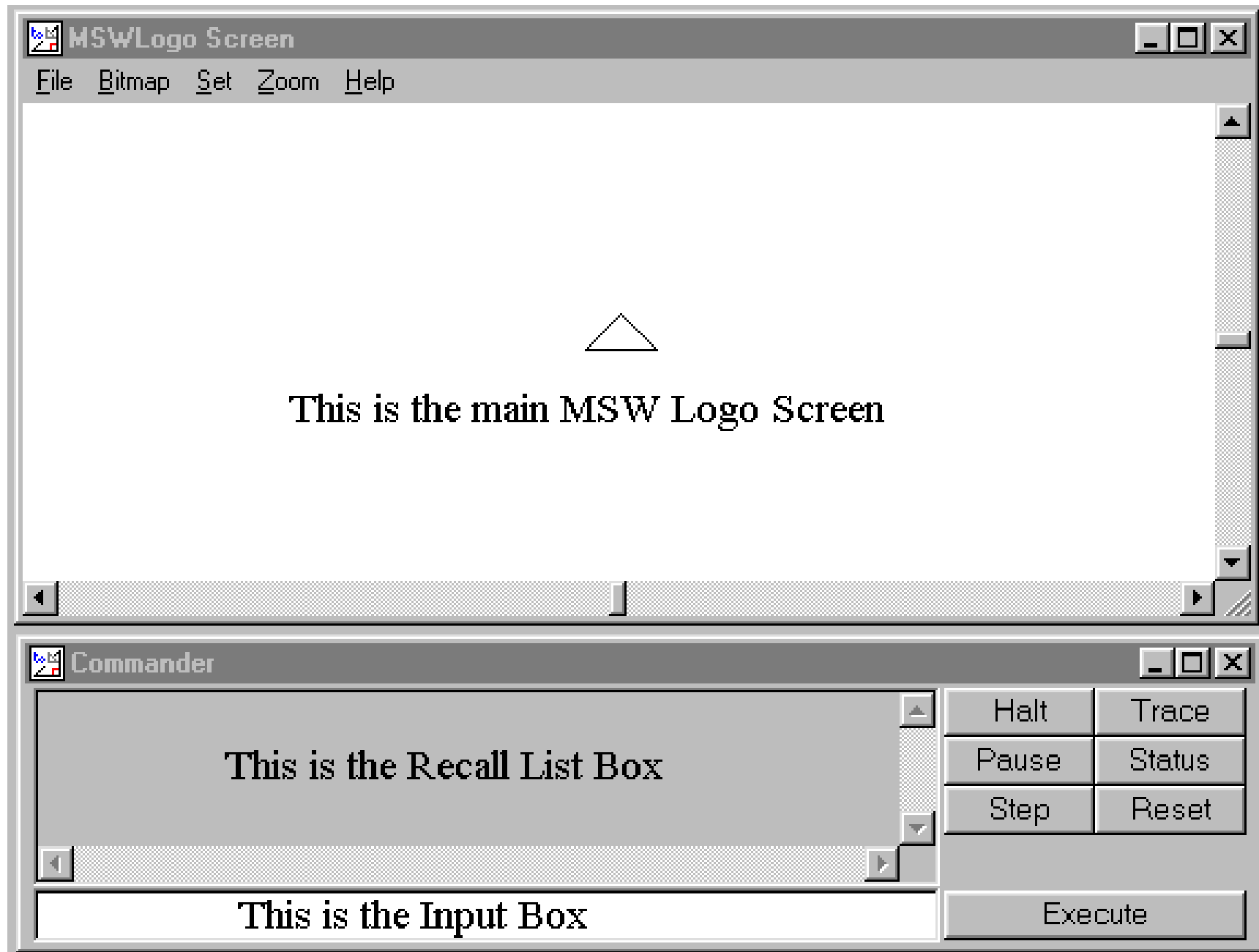
<http://www.softronix.com/>

Free

Many Resources

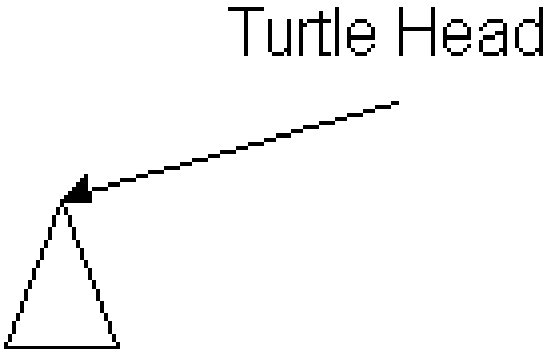
Full text Books

The Environment

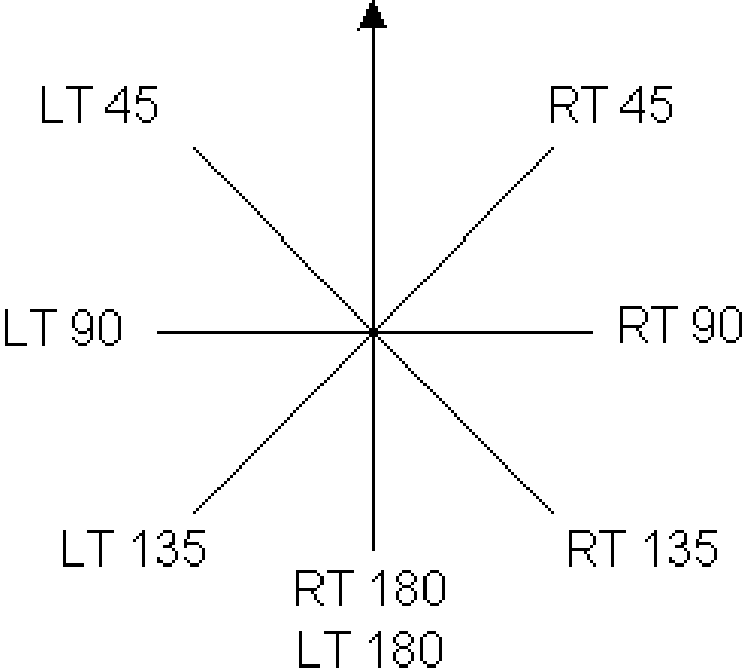


Basics

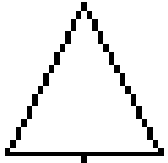
The turtle



Directions



Moving the Turtle



FD 100

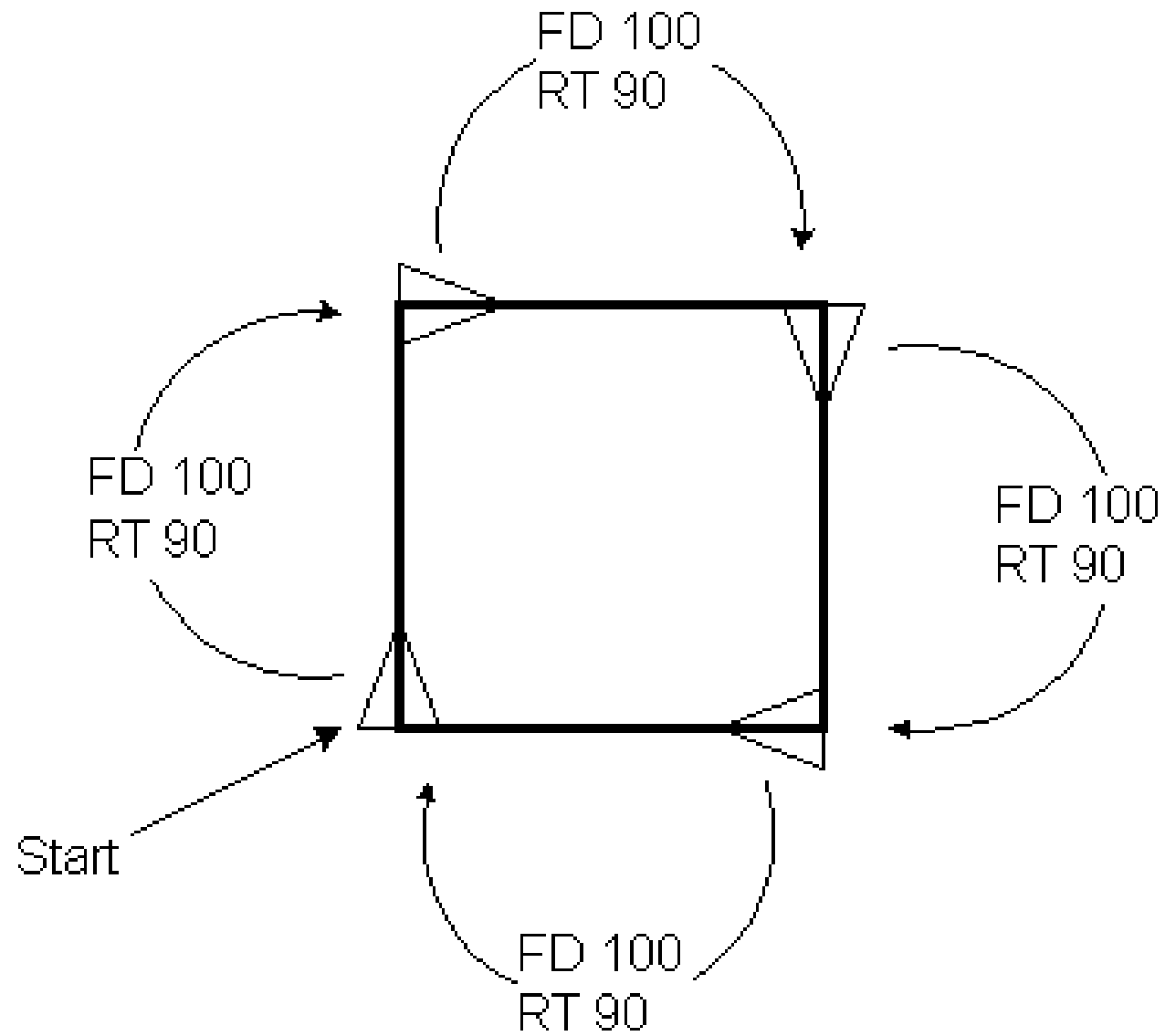
Commands

FD

RT

LT

Drawing a Square



Making it Simpler

Instead of

```
fd 100 rt 90 fd 100 rt 90 fd 100 rt 90 fd 100
```

We can use REPEAT num [....]

```
repeat 4 [ fd 100 rt 90 ]
```

Other Shapes

Triangle

```
repeat 3 [ fd 100 rt 120 ]
```

Pentagon

```
repeat 5 [ fd 100 rt 72 ]
```

Hexagon

```
repeat 6 [ fd 100 rt 60 ]
```

Logo Commands

FD 100	Forward 100 steps
RT 90	Turn right 90°
LT 90	Turn left 90°
BK 100	Backwards 100 steps
PU	Pick up the turtle's pen
PD	Put down the turtle's pen
CS	Clear the screen
HT	Hide the turtle (triangle)
ST	Show the turtle (triangle)
WAIT x	Wait 1/60 of a second

More on Repeat

```
cs repeat 20 [ fd 100 rt 170 ]
```

```
cs repeat 100 [ fd 10 rt reccount ]
```

reccount is the # of the repeat

1, 2, 3, 4

Creating Words

Annoying to type

```
REPEAT 4 [FD 100 RT 90]
```

Create a word (function)

```
TO SQUARE
```

```
  REPEAT 4 [FD 100 RT 90]
```

```
END
```

Now we can use it

```
square
```

```
repeat 36 [square rt 10]
```

Parameter Passing

What if we want different sizes?

```
TO SQUARE :SIZE
```

```
  REPEAT 4 [FD :SIZE RT 90]
```

```
END
```

Now you can tell logo to:

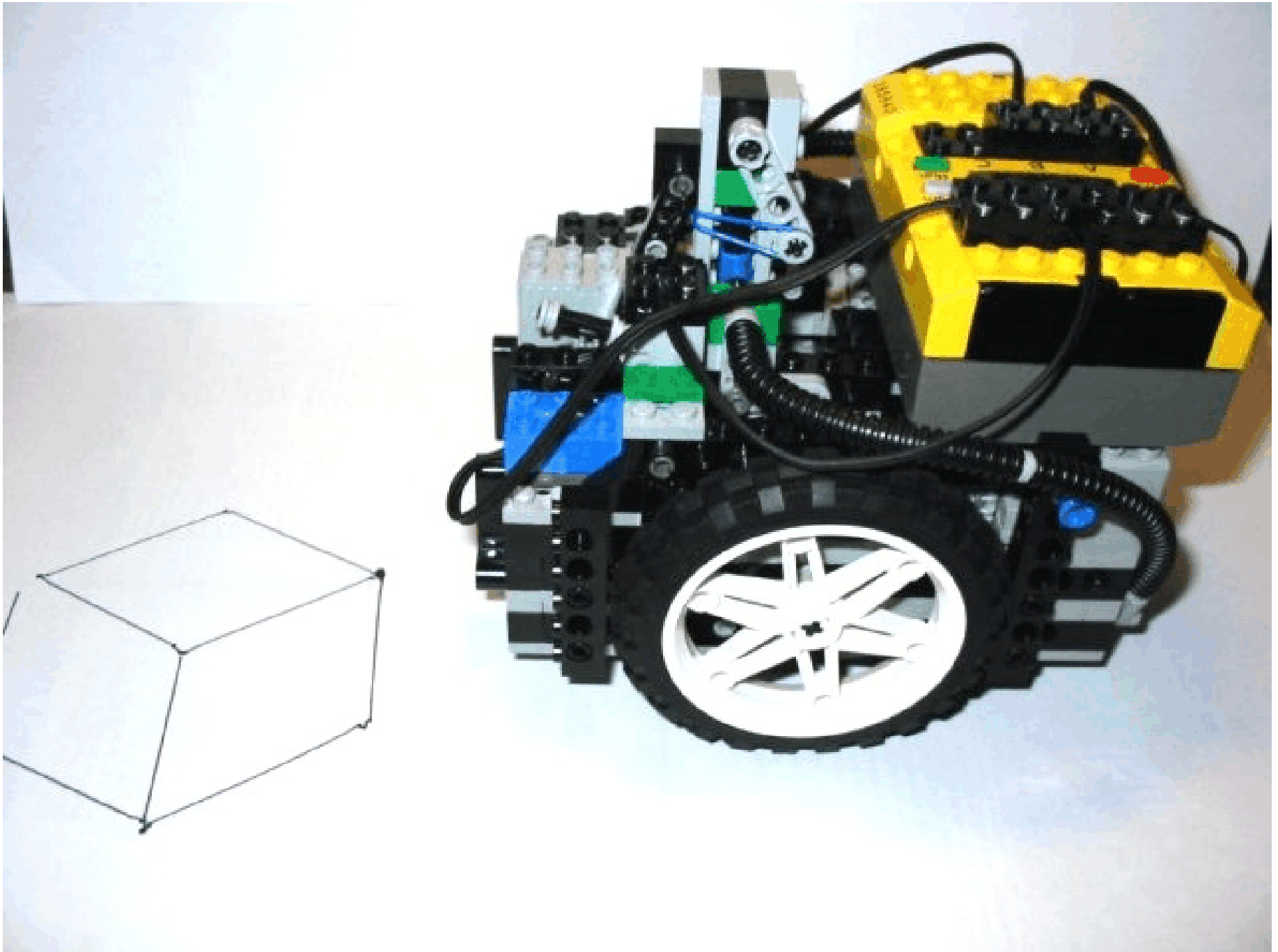
```
SQUARE 50
```

or

```
SQUARE 100
```

```
repeat 100 [square reccount rt 10]
```

Lego Robotics



Questions?

End of Presentation