George

THE COMPUTER ROBOT

George's Personal File !

GEORGE BELONGS TO:

(name) ..... AND

LIVES .....

(in the toy cupboard, etc.)

Please handle me with care!

signed

COMPUROBOT

MY MESSAGE TO YOU

I am designed to be a funful programming teaching aid and I can give you and your children unlimited opportunity to have first hand experience in programming a mobile computer robot. Above all — have fun! PROGRAMMING me should be FUN.

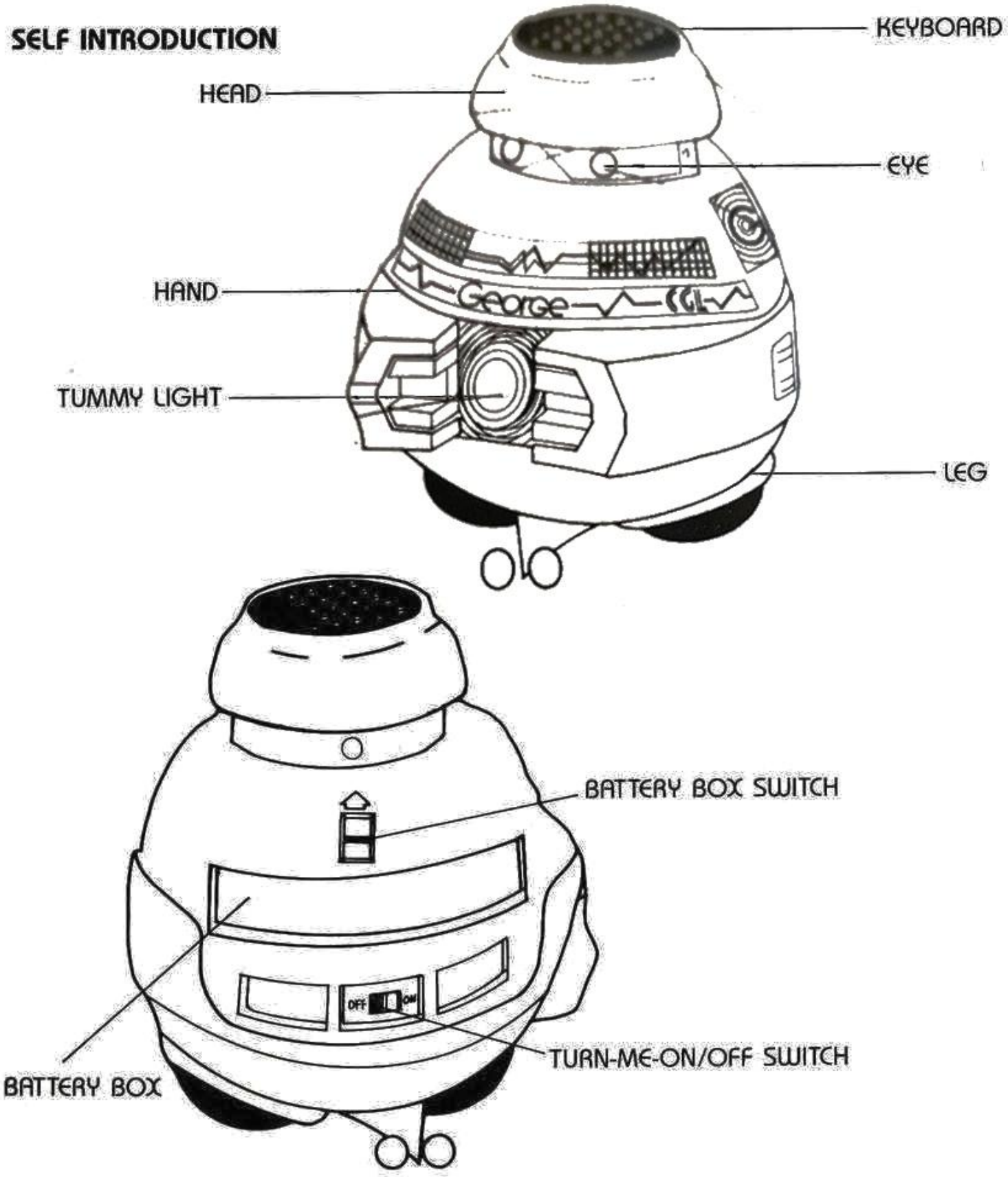
IT IS ALWAYS WISE TO KNOW MORE ABOUT ME BEFORE TURNING ME ON.

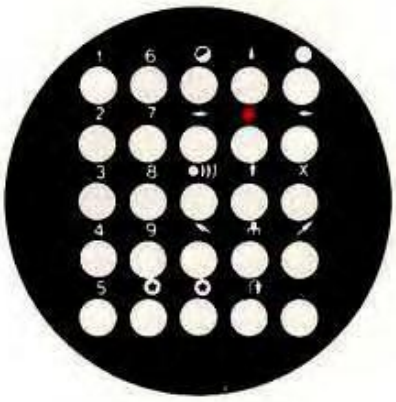
I CAN LIVE VERY LONG if you take good care of me.
I AM TOUGH , but I definitely don't like to be dropped onto the floor or thrown around like a rubber ball.
I LOVE CLEANLINESS. Wipe me clean with a damp cloth sometimes. But never ever submerge me in water.
I AM VERY EDUCATIONAL. I can help you to teach your child about the concept of programming in a very relaxed manner.
I AM VERY FUNFUL. Let me run around your house, I can bring lots of fun to your family.
I HAVE A LONG MEMORY. I can remember up to 48 programming commands. Could you?
I AM VERY OBEDIENT. I respond exactly what you have programmed.
I AM AN ENERGY SAVER. I make noise to remind you if you forget to turn me off.
I LOOK WEAK AND HUNGRY SOMETIMES. Don't worry. Just feed me with new batteries.
I LIKE TO SHOW OFF. Just hit the DEMONSTRATION key ★ and I would show you everything I know.

I would recommand you to read the rest of my file before playing with me. You find it worthwhile. Remember, this file only serves to give you some ideas about me, you will discover more through playing together.

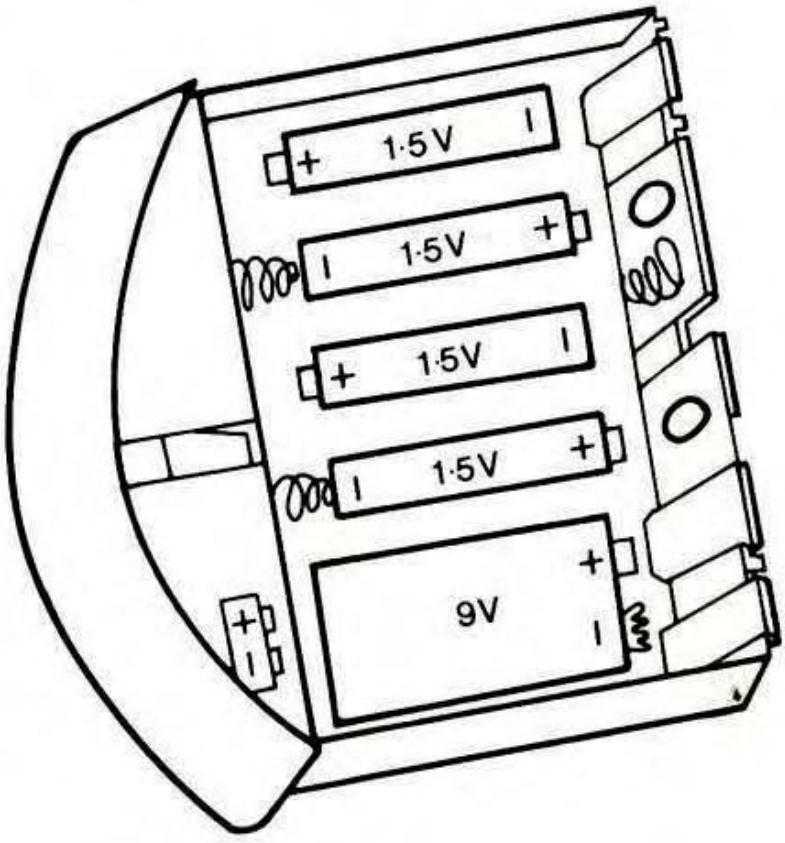
CONTENTS:

SELF INTRODUCTION





KEYBOARD



BATTERIES INSTALLATION

PROGRAM. COMMAND

A PROGRAM is a COMMAND or a series of COMMANDS telling me what to do.

A COMMAND is formed by a FUNCTION key followed by a NUMBER key.

KEYS

FUNCTION AND NUMBER KEYS

1. FUNCTION keys consist of the following keys:

- ↑ — to go forward for a certain time.
- ↓ — to go backward for a certain time.
- → — to turn right for a certain angle.
- ← — to turn left for a certain angle.
- ● — to pause for a certain time.
- X — to multiply the previous command by a number.
- 🔊 — to turn on/off the audio sound.
- ↱ — to curve right for a certain time.
- ↰ — to curve left for a certain time.
- 🚶 — to set me into first gear, second gear or third gear.

2. NUMBER keys consist of the following keys:

1 , 2 , 3 , 4 , 5 , 6 , 7 , 8 , 9

For functions ↑ , ↓ , ● , ↱ , ↰ , these keys represent number of seconds.

For functions → , ← , these keys represent number of a certain angle.

For the function X , these keys represent the multiplier.

For the function 🔊 , 1 , and 3 represent ON and OFF respectively.

For the function 🚶 , 1 , 2 and 3 represent 'First Gear', 'Second Gear' and 'Third Gear' respectively.

 GO KEY

This key tells me to execute the program stored in memory.

 RECOLLECT RUNNING KEY

This key enables me to execute the program stored in memory, make an about turn, and execute the same program again but in a reverse manner.

 DEMONSTRATION KEY

This key gives me an opportunity to demonstrate all the things I can do. This demonstration lasts for about one minute.

The following two keys provide you error correction facilities during program entry.

 CLEAR LAST COMMAND KEY

Pressing this key will clear the last command entered. This is very helpful especially when creating a program by trial and error method.

 CLEAR ALL MEMORY KEY

This key erases all memory.

SIMPLE PROGRAM ILLUSTRATIONS:

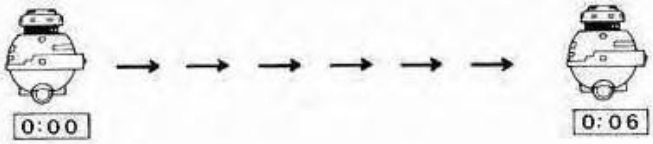
In order to get familiar with me, please try out the following simple programs which consist of minimal number of commands. When you feel at home with these programs, you can try out more complex programs in the next section. And then you can start to create your own programs. This is when the real fun begins. Remember, the only limitation of playing with me is your imagination.

Example 1) (↑) FORWARD

To program me moving FORWARD for 6 seconds.

Just enter the program (↑) , (6)

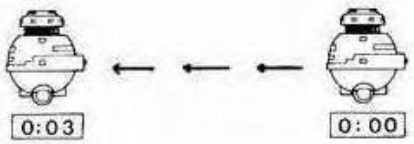
To execute this program, press ● . I immediately response you with some noise, move forward for 6 seconds, then make a different noise to indicate I am done.



Example 2) (↓) BACKWARD

Move BACKWARD for 3 seconds.

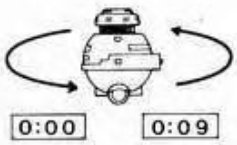
Enter (↓) , (3) ●



Example 3) ← TURN LEFT

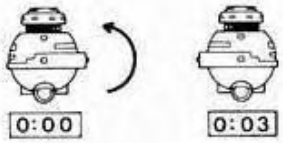
TURN LEFT for 9 seconds.

Enter ← 9 ●



TURN LEFT for 3 seconds.

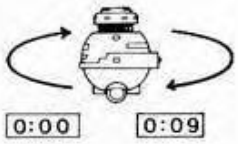
Enter ← 3 ●



Example 4) → TURN RIGHT

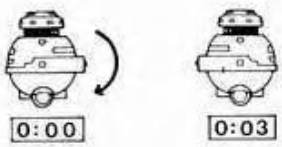
TURN RIGHT for 9 seconds.

Enter → 9 ●



TURN RIGHT for 3 seconds.

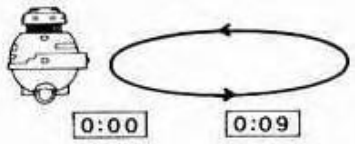
Enter → 3 ●



Example 5) CURVE RIGHT

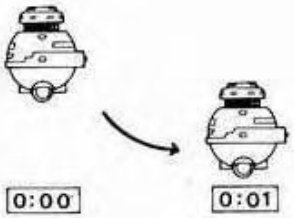
CURVE RIGHT for 9 seconds.

Enter 9



CURVE RIGHT for 1 second.

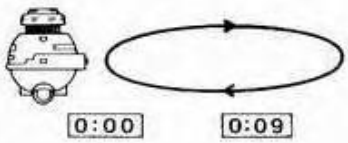
Enter 1



Example 6) CURVE LEFT

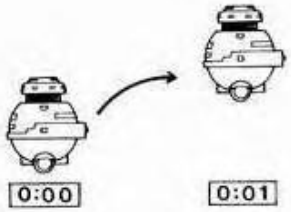
CURVE LEFT for 9 seconds.

Enter 9



CURVE LEFT for 1 second.

Enter 1

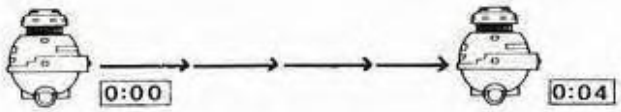


Example 7) GEAR

I can move forward or backward at 3 different speeds.

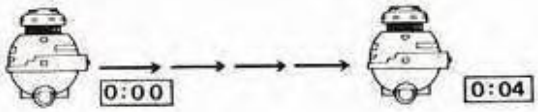
Move forward at 3rd GEAR (high speed) for 4 seconds.

Enter GEAR 3 ↑ 4 ●



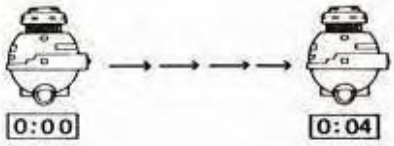
Move forward at 2nd GEAR (medium speed) for 4 seconds.

Enter GEAR 2 ↑ 4 ●



Move forward at 1st GEAR (low speed) for 4 seconds.

Enter GEAR 1 ↑ 4 ●



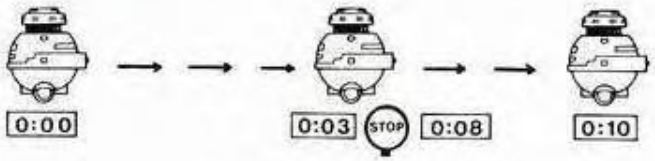
NOTE: Please try me with ↱ ↰ at 3 different speeds too!

NOTE: After turning me on, I always stay at 1st GEAR until you set me to higher GEAR.

Example 8) PAUSE

Move forward for 3 seconds, pause for 5 seconds, then move forward for 2 seconds.

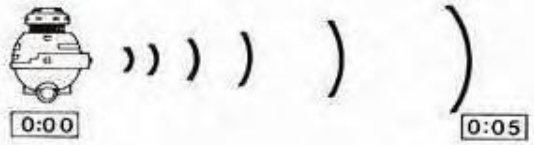
Enter ↑ 3 ● 5 ↑ 2 ●



Example 9) AUDIO

Turn on AUDIO, pause for 5 seconds, and then turn off AUDIO.

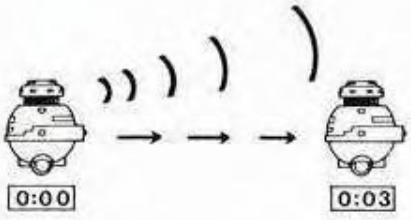
Enter 1 ● 5 3 ●



Turn on AUDIO, move forward for 3 seconds, and then turn off AUDIO. (Note that audio is still on while moving forward.)

Enter 1 ↑ 3 3 ●

ON OFF



Example 10) (X) MULTIPLY

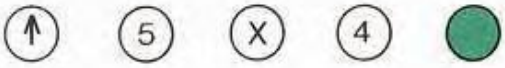
If you want to move forward for about 20 seconds, there are many ways to do it. For instances,

a) Enter 

b) Enter 

c) Enter 

But the easiest way to achieve the same result is using the (X) key:

a) Enter 

b) Enter 

c) Enter 

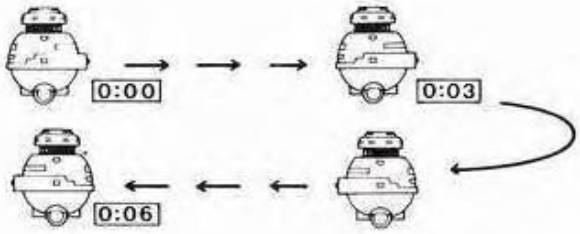
(X) multiples the previous command by the number followed. Obviously you can now realize the longest duration I have for a single command is 81 seconds.

Enter 

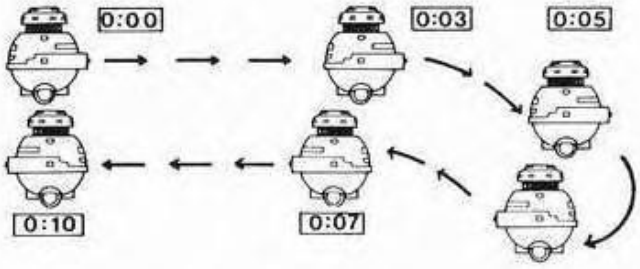
Example 11) ↻ RECOLLECT RUNNING

For all the examples mentioned above, hitting the ↻ key instead of the ● key does not only make me execute the program stored in memory completely, but also make an about turn, and execute the same program again but in a reverse manner.

Enter ↑ 3 ↻



Enter ↑ 3 ↗ 2 ↻



Obviousely you can now realize the longest duration for a program is about an hour.

Example 12) ◒ CLEAR LAST COMMAND

◒ always clears the last command in memory and is very useful for error correction. For instances,

Enter ↑ 3 → 6 ↗ 2

Hit ◒ key would make the memory content becomes ↑ 3 → 6

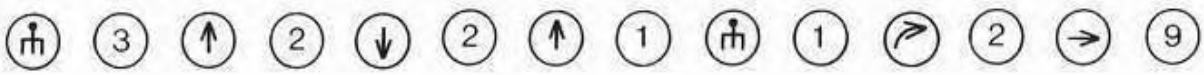
Hit ◒ key again would make the memory content becomes ↑ 3

Hit ◒ key third time would empty the memory.

COMPLEX PROGRAM ILLUSTRATIONS

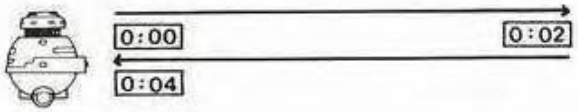
You can always combine the above examples from 1) to10) in any fashions to create many many complex and interesting programs up to 48 commands long. In the process of designing a long program, you don't need to enter the whole program all at one time. It's always a good idea to test the program piecemeal before coming up with a complete program.

Example A) Take this program as an illustration:

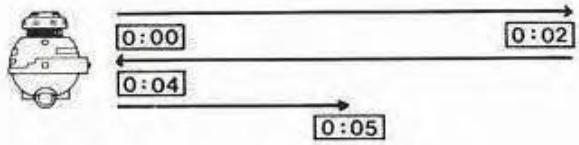


First of all, hit ○ to clear the memory.

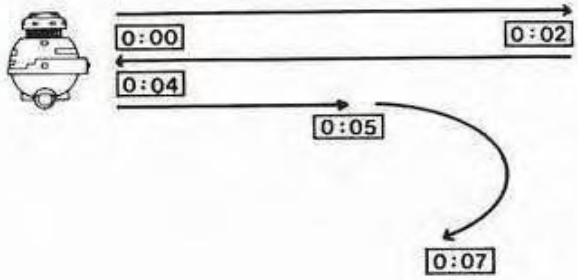
a) Enter 



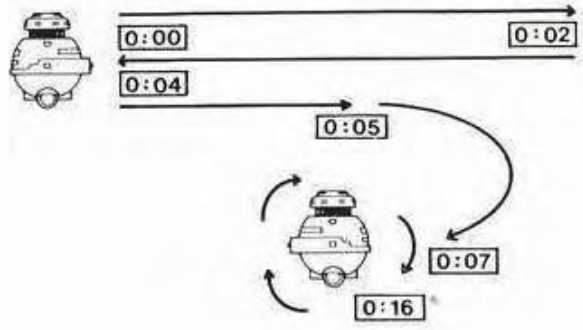
If you don't satisfy the outcome, use  key to help you modify the program until you satisfy. Otherwise continue the program entry by entering.



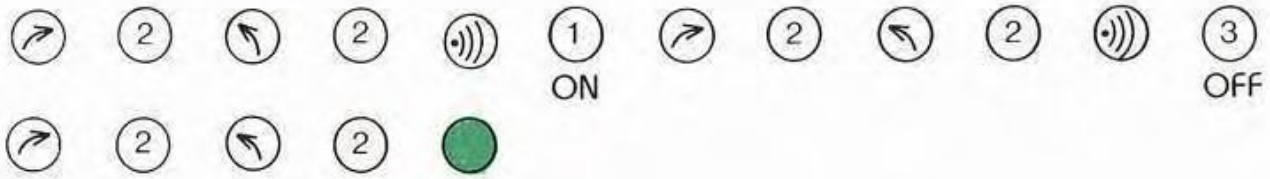
Again when you satisfy with the outcome, continue the entry by entering

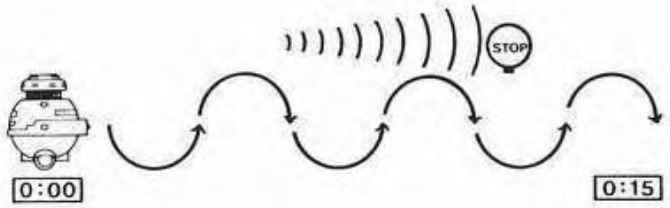


Finally enter 

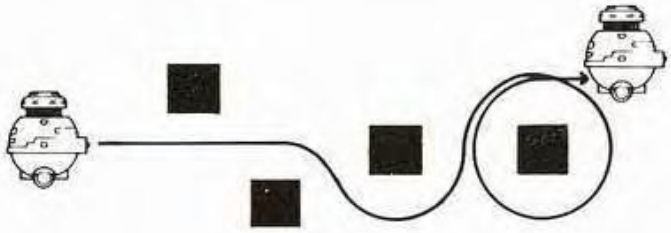


Example B) With the technique mentioned in Example A), let us try this program.





Example C) By now, you should be very familiar with me. Let us play steeple chase — a FUN way to learn PROGRAMMING.



EXTREME CASES:

1) The memory can hold up to 48 commands. When memory capacity is exceeded, I would give you a warning sound and further entry is ignored.
2) When power is turned off, all program stored in memory would disappear.

TURN-OFF POWER REMINDER

In case you forget to turn me off, I would make noise to remind you about every 2 minutes and 20 seconds.

TROUBLE SHOOTINGS

In case I look weak and slow, or don't move linearly, check those AA1.5V batteries. Replace them if necessary.
If I make noise continuousely as soon as the power is turned on, most probably the 9V battery needs to be replaced or its polarities are reversed. Remember the 9V battery is for the microcomputer and it should not be replaced very often.

SPECIFICATIONS

* Cabinet: ABS plastic
* Size: height (16.8 cm), width (13.3 cm), depth (14 cm)
* Processor: custom-made 4-bit microcomputer
* Batteries: 4 size AA 1.5V
* 1 9V
* Keys: conductive rubber keyboard
* Motors: Mabuchi RE-260-2295. 9400rpm
* Gear module: custom-made with velocity ratio 2:51