

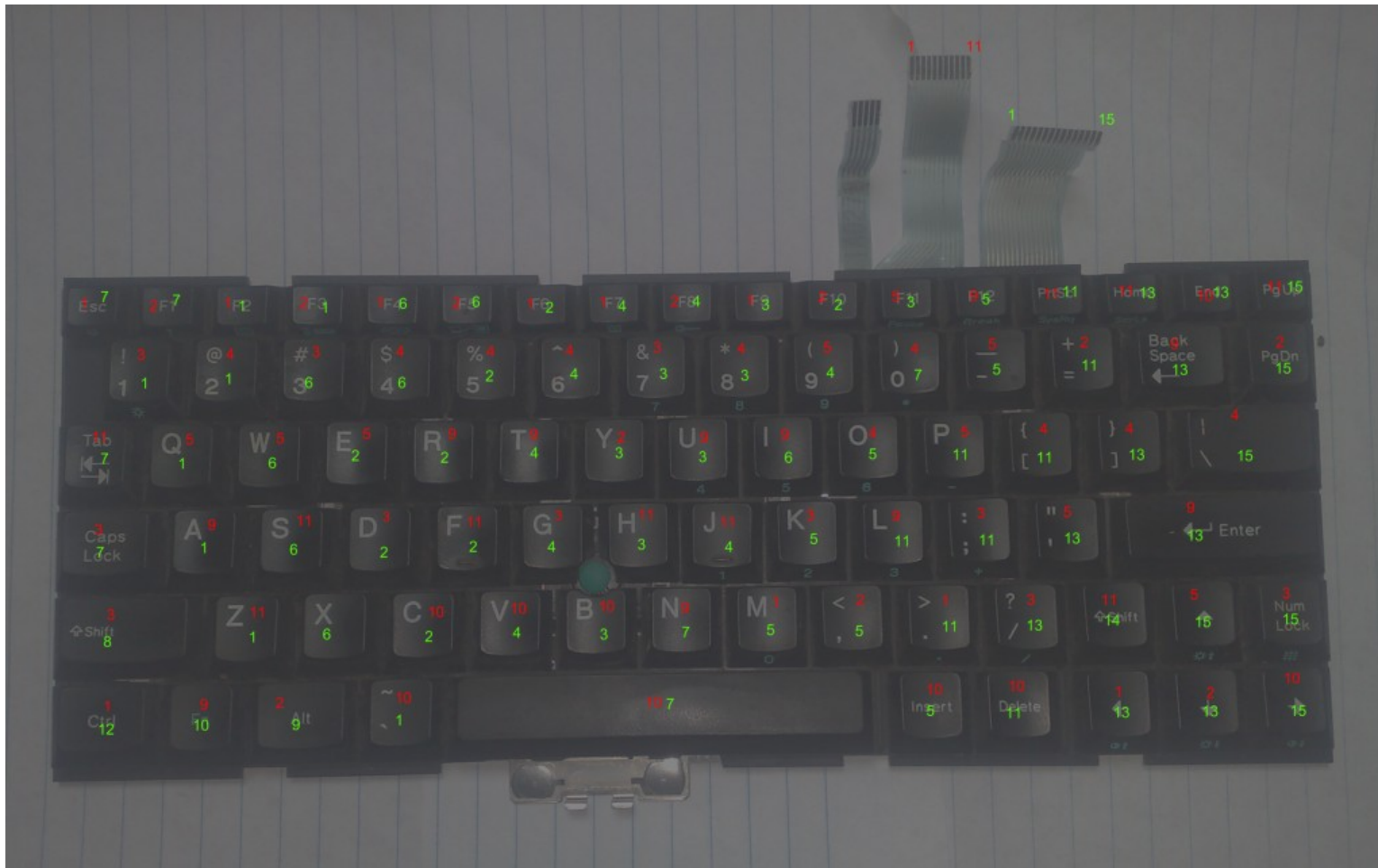
## Laptop Keyboard Encoder

For my project, I want to create a regular PS/2 keyboard from a laptop keyboard.

The keyboard itself is from an ancient AST laptop. The laptop itself had given up the ghost many years ago, but I disassembled it and kept the keyboard. The keyboard connected to the laptop via 3 ribbon cables.

The first of the cables has five lines, the second has 11 lines and the last has 15 lines. Tracing between the second (11 line) and third cables (15 line), I found this matrix.

	1	2	3	4	5	6	7	8	9	10	11
1	F2	F3	1	2	Q				A	`~	Z
2	F6	F10	D	5	E				R	C	F
3	F9	Y	7	8	F11				U	B	H
4	F7	F8	G	6	9				T	V	J
5	M	,<	K	O	-_				F12	Insert	
6	F4	F5	3	4	W				I	X	S
7	Esc	F1	CapsLock	0					N	Space	Tab
8			L Shift								
9		L Alt									
10									FN		
11	.>	=+	;;	[{	P				L	Delete	PrtSc
12	L Ctl										
13	Left	Down	/?	]}	'"				BackSp	End	Home
14											R Shift
15		PgDn	NumLock	\ Up					Enter	Right	PgUp



I assume the three unused lines on the second cable and the first (5 line) cable relate to the thumbstick and mouse buttons, but I have not tested this yet.

Condensing things down, it looks like the regular keys, can be driven by a 8x10, to get all keys, an 8x15 matrix is needed. To get the pointer and mouse buttons working, an additional 3x5 matrix will be needed.

Interfacing with the PS/2 port will require an additional 2 I/O lines.

The general idea behind the keyboard encoder will be scanning. Drive each line on one cable low in turn, read on the other line with pull-up resistors for lines to be pulled low, indicating a pressed key.

Output port -> Cable 2 -> keypress -> cable 3 -> pullup -> Input Port

First I hope to get the basic keypress detection. The next step will be getting the PS/2 output working. Then I will add in the various modes, including the FN enabled numeric keyboard. Then I hope to add in a macro mode. I was also thinking of trying to a irda interface.

If I find a way, I may try implementing a USB interface instead of a PS/2.

If I still have time I may look at getting the thumbstick and mouse buttons working.