

```

(*Nasser M. Abbasi, 9/28.2015*)
Manipulate[
Module[{x},
g[x_, r_, k_] := r - x / k;
f[x_] := Piecewise[{{-0.5, x ≤ -1.0}, {x + 1/2, -1 ≤ x ≤ -1/2},
{0, -1/2 ≤ x ≤ 1/2}, {x - 1/2, 1/2 ≤ x ≤ 1}, {1/2, x > 1}}];
data = First@Last@Reap[Do[
sol = x /. First@NSolve[f[x] == g[x, r, k], x];
 Sow[{r, f[sol]}],
{r, -2, 2, .2}
]
];
Grid[{
Row[{Text@Style[
"Red color is linearized device output using feedback", Medium]}]},
{
Show[Plot[f[x], {x, -2, 2}, Exclusions → None],
ListLinePlot[data, PlotStyle → Red], ImageSize → 400, GridLines → Automatic]
}}
]
],
{{k, 1, "k"}, 1, 20, .1, Appearance → "Labeled"},
TrackedSymbols → {k}
]

```

