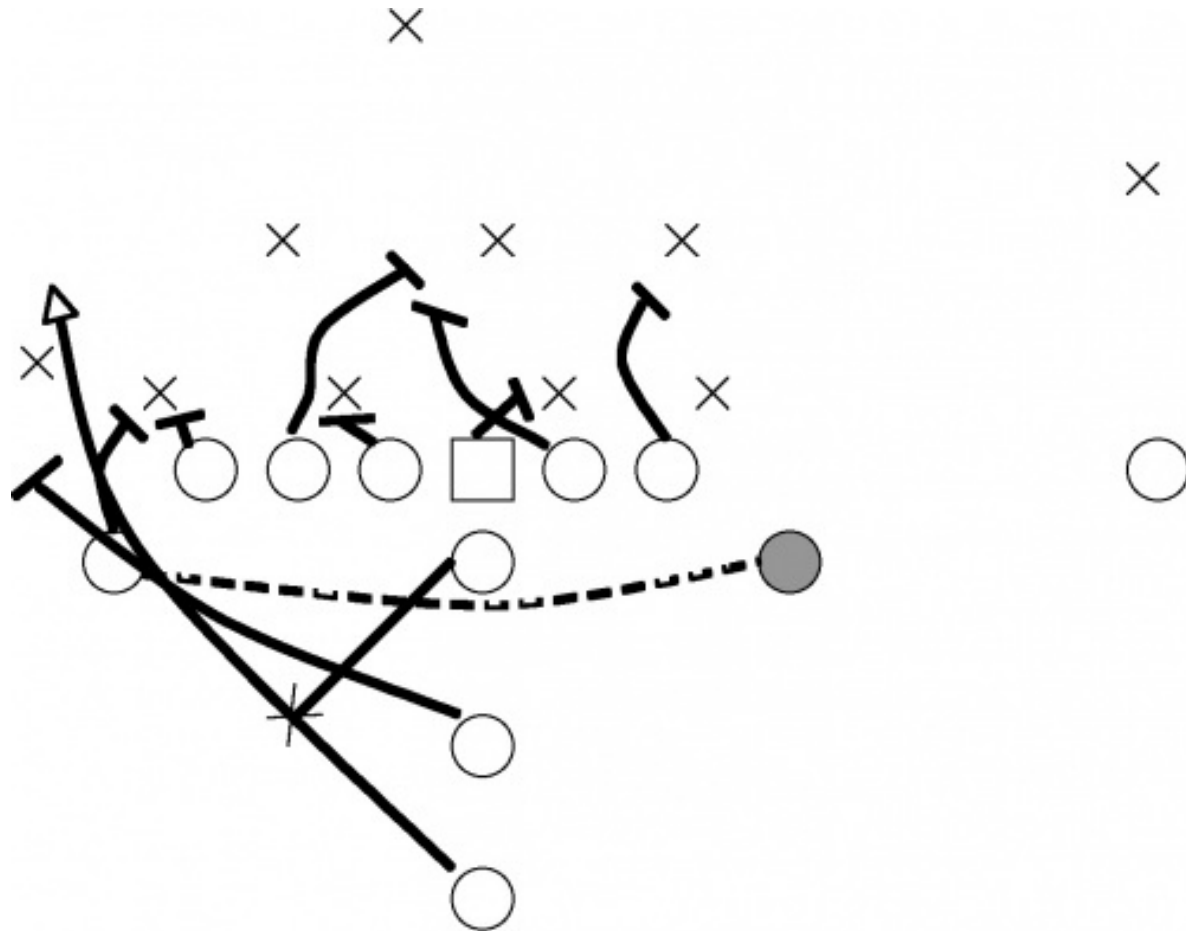


VisualEyes Your Plays



Current Control Flow

- Offensive Coordinator → Head Coach → Quarterback → Rest of the offensive team
- Play calls can be complex and very wordy
- Instead the coordinator and head coach just call a column and number which translates into the actual play call
- The QB has wears velcro wristband that translates the play call code to actual play calls
 - Example: 34F is translated to Gun-Y Empty PA Jet Sweep Left



Okla/Tex/Ark

- 1) Slot 16 Drop Cr
- 2) I 16 Fr.
- 3) I 17 "0" Give
- 4) ST lft 17 Lead
- 5) +/up 13 slash "C"
- 6) up 16 Ram
- 7) Unb lft 16 Give
- 8) Unb lft 16 Arc
- 9) +/up 16 Lead
- 10) I 22 Lp lft
- 11) up 75 Tri. Scr.

Kan/Neb/Mis

- 1) Slot Lft 17 Dr. Cr
- 2) I 17 Fr.
- 3) I 16 "0" Give
- 4) ST rt 16 Lead
- 5) -/up 12 slash "C"
- 6) up lft 17 Ram
- 7) unb rt 17 Give
- 8) Unb rt 17 Arc
- 9) -/up 17 Lead
- 10) I 23 Lp rt.
- 11) I 22 Lead

Mont/Utah

- 1) Sl. 16 Dr. Cr Pa.
- 2) I Rt 158 Pass
- 3) I Rt 131
- 4) I Rt 149 in
- 5) I Rt 149
- 6) I Rt 159 in
- 7) I Rt 159
- 8) T-Tw Lp lft Draw
- 9) T-Tw 17 Dr Lp Rt
- 10) up 222 Hex
- 11) I 23 Lead

2k Cyclones IGWT & gm#8 (Wisdom)

Wristband Pros

- Can shorten lengthy play call
- Coach can safely call play without making a substitution
- Different sizes can store up anywhere from 40 (GB Packers) to 120 plays (Carolina Panthers)
- Hard for defenses to steal plays even if they hear the encoded play call
- Has list of audibles and emergency play calls in case QB can't hear the coach

Wristband Cons

- Small text can cause QBs to accidentally read the wrong row/col and call the wrong play
- QBs can hear the wrong play call code from the head coach and call the wrong play
- All the players still need to have the actual play memorized
 - Can cause turnovers if offensive players accidentally runs the wrong route

A better wristband

- Bill Cower (Ex-Steeler Coach) said ““We like to get to the point where (Roethlisberger) is not so dependent reading it all because we like the quarterback to be able to visualize the play.”
- Send a graphic of playcall to an onscreen display embedded in the QBs wristband
 - No misreading the play call
 - No misinterpretation of the play
 - No bad routes
 - New players who have not yet memorized the playbook can still play

Specs

- Wirelessly send plays from an app and/or webinterface from sideline to on-field wrist receiver
- Have plays pulled from online database so app and receiver can be more lightweight
 - Can create and send plays on the spot
- Can do interesting things with play call data
 - Record when plays were called
 - How successful it was
 - Send playcall to broadcast booth/stadium display after play is over
 - Can help audience know if the QB threw a misplaced ball or the receiver ran the wrong route
 - Track how often a play is called and in what situations

Scope

- Support only NFL plays
- Support only one receiver wristband
- Have playcall encrypted upon transmission
- Have receiver receive the play call within 1 second
- Rugged display that can handle even the worst QB sacks
- Battery life of at least 5 hours on a full charge
- Display automatically adjusts brightness
- Error message if play call could not be sent/received
- Device needs to be lightweight and comfortable to wear
- Only support display of call sent to the QB wristband receiver (QB cannot scroll through list of plays and call his own)

Components

- Microcontroller – Arduino FIO (8bit controller built for wireless applications)
- 802.11 receiver (Xbee built into FIO controller)
- Display
- Case for display (gorilla glass)
- Wristband outfitted for device
- Ambient light sensor

Links

- NFL embedded devices ban
 - <http://online.wsj.com/article/SB10001424052970203893404577100683039518086.html>
 - <http://www.tmcnet.com/topics/articles/238904-nfl-using-ipads-playbooks.htm>
- Wristband analysis
 - http://www.bign2football.com/wrist_band.htm
 - http://findarticles.com/p/articles/mi_m1208/is_24_229/ai_n13812569/
- Competitors
 - <http://idcoach.com/american-football/>
 - <http://digitalplaybooks.com/>
- Arduino FIO
 - <http://www.sparkfun.com/products/9712>
 - <http://arduino.cc/en/Main/ArduinoBoardFio>

Competitors

- ID Coach
 - Plays are prestored on memory card
 - Cannot create on the fly plays
 - Harder to track play call time and result
 - Only one level of transmission (cannot send plays through multiple devices)
 - Unsure about other specs (ruggedness, battery life, weight, cost)
 - Can only send plays from a special hardware PDA
 - Cannot use any tablet/device
- Digital Playbooks
 - App only lets you create and view plays on iPad
 - Does not send play to an onfeild reciever

ID Coach



PRT HANDSET

ARMBAND WITH LCD

LCD RECEIVER

