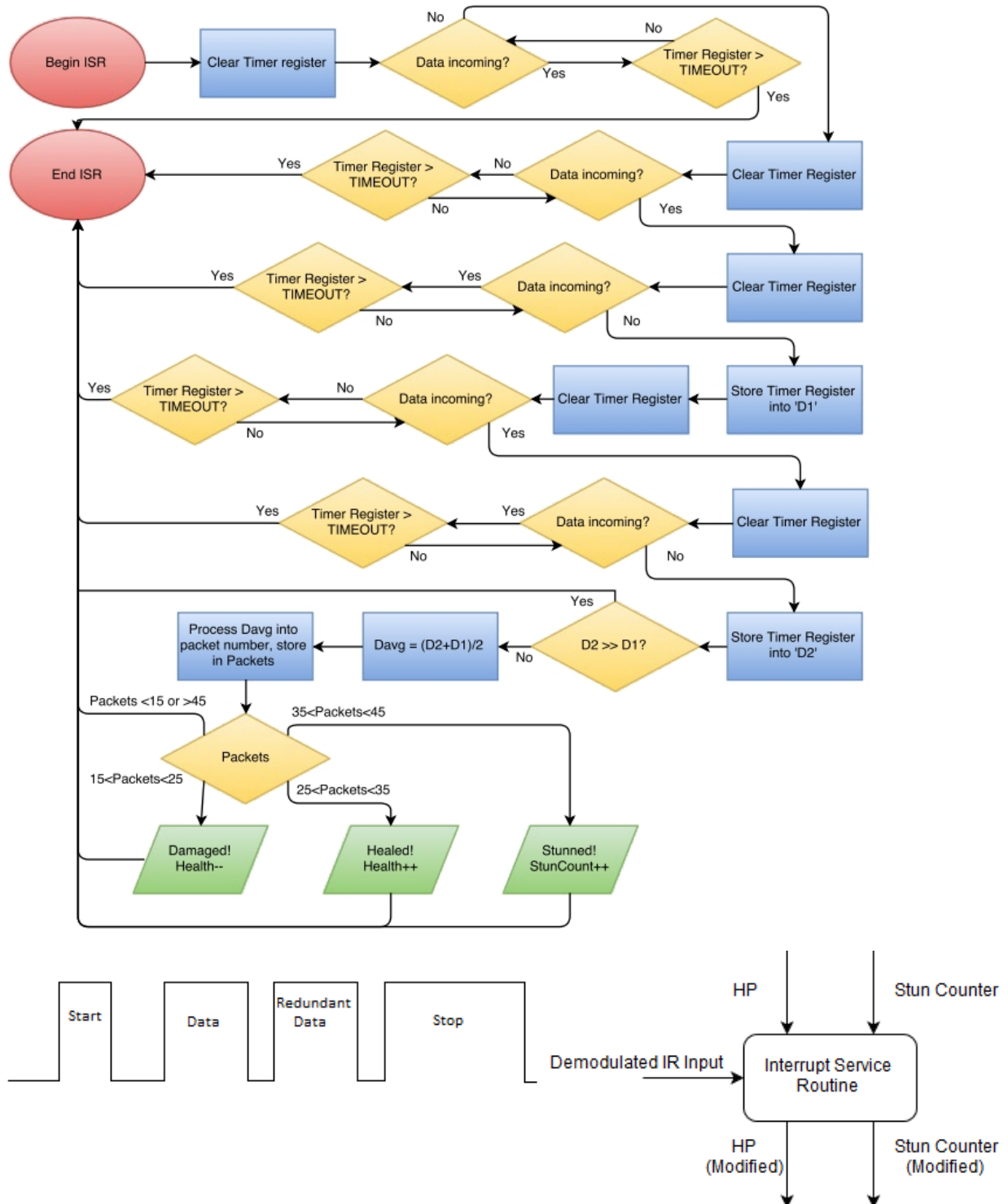


Prototyping Interrupt Service Routines for the Omega Blade

Christian Coffield
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Flowchart and Diagram of I/O





Expected input and Output

Hardware Input

Name	Description	Expected Value
Damage Packet	20 on-bursts in the standard MIRP format, demodulated.	Digital pulse wave: 178.5us followed by 357us burst followed by 357us burst followed by 2678.5us burst.
Health Packet	30 on-bursts in the standard MIRP format, demodulated.	Digital pulse wave: 178.5us followed by 535.5us burst followed by 535.5us burst followed by 2678.5us burst.
Stun Packet	40 on-bursts in the standard MIRP format, demodulated.	Digital pulse wave: 178.5us followed by 714us burst followed by 714us burst followed by 2678.5us burst.

Software Input

Name	Description	Expected Values
HP	Record of weapon's current health.	$0 \leq HP \leq 50$
StunCount	Counter to determine how long, if at all, the weapon must be stunned.	$0 \leq StunCount \leq 65535$

Software Functions

Name	Description	Inputs	Outputs
main	Checks the health and stun variables for changes, lights corresponding LED, resets to default.	StunCount, HP	StunCount, HP
init_ISR	Sets up RA4 as an interrupt-on-change pin, and initializes a timer for measurements.	N/A	N/A
ISR	Determines the length of the data pulse and determines what type of packet was received.	Digital MIRP, StunCount, HP	StunCount, HP

Hardware Output

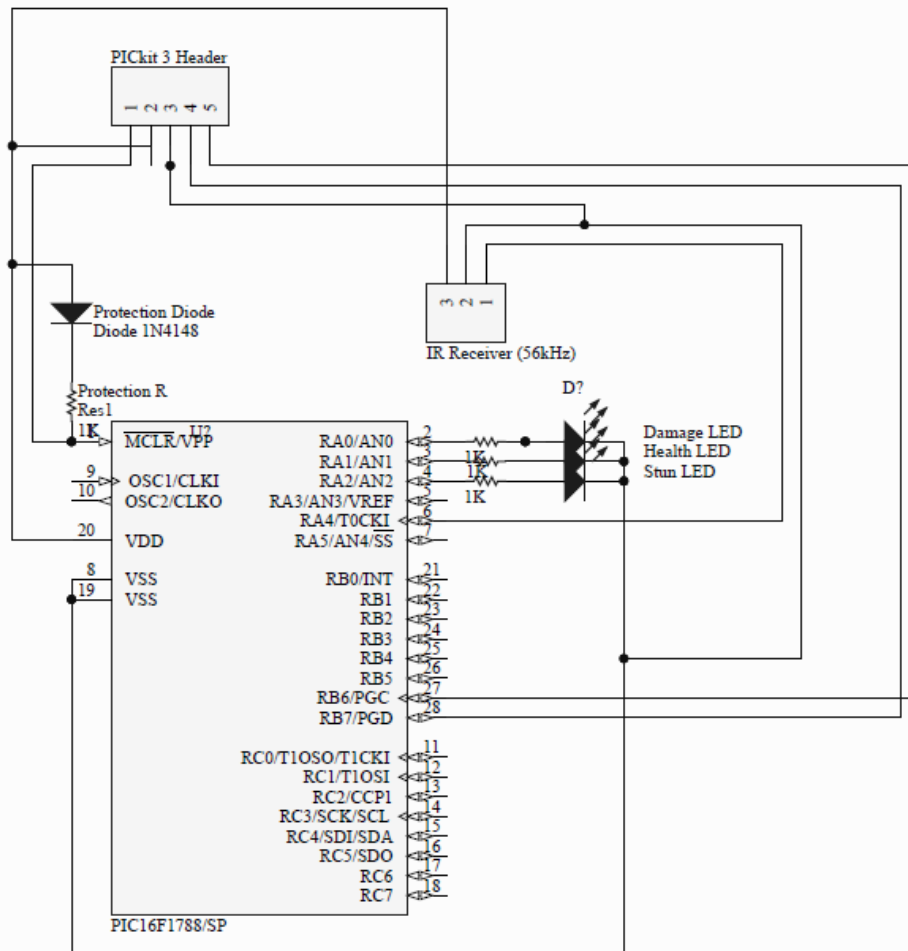
Name	Description	Expected Results
Red LED	Indicates damage has been received.	Lights for 200ms upon damage packet received.
Green LED	Indicates healing has been received.	Lights for 200ms upon heal packet received.
White LED	Indicates stun has been received.	Lights for 200ms upon stun packet received.

Software Output

Name	Description	Expected Values
HP	Modified record of weapon's current health.	Previous value, or previous value +



StunCount	Modified counter to determine the length of a stun.	Previous value, or previous value +
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Title		
Interrupt Service Routine Prototyping		
Size	Number	Revision
A	Prototype	3