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A combined target and detector to measure parity violation in neutron capture on ^{3}He for the n3He Experiment MARK MCCREA, University of Manitoba, N3HE COLLABORATION — The n3He Experiment aims to measure the parity violating asymmetry in the direction of proton emission relative to the initial neutron polarization direction in the reaction $\vec{n}+^3He \rightarrow T+p+765keV$ to a high precision. The experiment is currently running at the Spallation Neutron Source. Due to the large neutron capture cross section on ^{3}He a multiwire ionization chamber operated in current mode is used as both target and detector. The target is filled with ^{3}He gas at 0.5 atm pressure and has a length of 33.8 cm. The frame stack consists of 16 signal wire planes and 17 HV planes with 144 signal wires. I will discuss the design, construction and assembly of the detector. Multiple simulations are performed to understand the response of the detector to the neutron beam. I will discuss calculations using Garfield++ to simulate the electron avalanches and ion mobility in the wire chamber fields.

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