ABSTRACT

The piezoelectric effect was discovered by Jacques and Pierre Curie in 1880 [4] . Curie's brothers found that certain materials, when subjected to mechanical strain, suffered an electrical polarization that was proportional to the applied strain. This piezoelectric effect converts mechanical strain into electrical Voltage [9]. The molecular structure of piezoelectric (PZT) materials produces a coupling between electrical and mechanical domains [8]. Piezoelectric materials include lead zirconate titanate (PZT), zinc oxide (ZnO), polyvinylidene difluoride (PVDF), lead magnesium niobate-lead titanate PMNPT) [10], and polypropylene polymer (PP).

In this final project, rain still as unexploited energy will use to produce electric voltage by piezoelectric transducer. Kind of transducer piezoelectric that used is PZT (Lead Zirconate Titanate). Energy conversion processing occurred when raindrop touch the polymer layer of piezoelectric and make a unelastic thrust on its surface. That cause electric voltage appear.

From system above, resulted collector board from raindrop energy by piezoelectric which the output is AC (alternatif current). The highest voltage ever reach is 3.13 V for 30 Piezoelectric arranged on series when rainfall with the average voltage is 2.617 V.

Keyword: Rain, Piezoelectric, mechanical strain, electric, PZT