

## **ABSTRACT**

*The central digital clock system is a digital clock consisting of a series of master and several slave circuit. How it works, one set of masters to control multiple slave circuits, making it easier in control. This system has worked and the circuit can master control slave circuit. In LOS condition can operate properly. But it has a constraint, namely: the NLOS condition was operated inside a building, it turns out the circuit can not control slave circuit.*

*Because of the above, the authors try to complete the system clock on the system by replacing its transmitter antenna. In this project, the writer has finished designing and building the antenna. The antenna is microstrip bowtie antenna array with a frequency of 433 MHz, with the form of two array.*

*Results omnidirectional microstrip antenna design that has a bowtie-shaped VSWR = 1.147 at  $f_0 = 429$  MHz, VSWR = 1.187 at  $f_0 = 432.067$  and VSWR = 1.211 at  $f_0 = 436.067$ . It turned out that the results of VSWR meet the standards because it is still below 1.5, because we know that tolerance of the device that allows the reflected power at 2% of input power. This antenna has a bandwidth of 68 MHz, exceeding the required specifications with  $VSWR \leq 1.5$  from the frequency (410.2 to 479) MHz instead of the original specification with a frequency (429.0325 to 436.0325) MHz. The functional test have done, the best result is the system operation in third floor (the same floor)*

*Keywords : the central digital clock system ,master of system, slave of master, the bowtie microstrip antenna*