

ABSTRACT

The user on the cellular system is a parameter that always moving whereas sectorization is a method that divides the cell into equal parts and is supported by one antenna in each sector. This allows at a certain time the occurrence of a condition in a sector that has been divided is actually no user at all so that the antenna does not provide any service but still provide the emission.

Given the conditions that allow a sector in the systemization sector there is no user at all in the area of coverage then the system needed to optimize conditions like this. To overcome this required a system on the BTS that is able to the antenna to adapt the changing in environmental topology around the BTS.

In this research designed and realized a rotator device for sectoral antenna that controlled by an integrated software. This software is used as antenna position controller and pointer of user location to hardware. The hardware of this system itself consists of two mounting antennas that are driven by a stepper motor to rotate clockwise or counter-clockwise. The hardware system is also supported by a pneumatic system that is utilized to drive the antenna tilting actuator. In this prototype embedded a GPS module that serves to determine the position of the tool and compare it to the user position.

The rotator system prototype that has been created has 360° rotation capability with a large angle of 5° per click, this rotation command from the GUI system. This prototype is controlled by a GUI system capable of showing the user's position against the prototype position. This prototype is supported by GPS devices that have a deviation rate of no more than 5 meters.

Keywords : *Sektorization, Sectoral Antenna, Microcontroller, GPS, Rotator System, Celluler, Pneumatic.*