

**BOĞAZ KÖPRÜSÜ YOLUNA  
KATILIM NOKTALARINDA  
TRAFİK AKIMLARININ BULANIK  
MANTIK YAKLAŞIMI İLE  
KONTROLÜ  
VE BİR UYGULAMA ÖRNEĞİ**

*Vedat TOPUZ<sup>1</sup>*

*Ahmet AKBAŞ<sup>2</sup>*

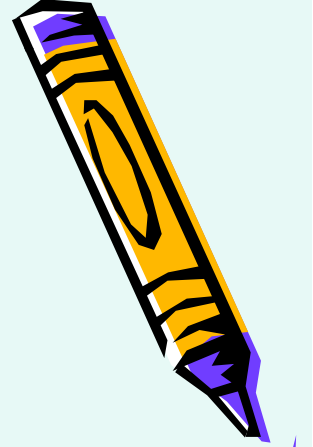
*Mehmet TEKTAŞ<sup>3</sup>*

*<sup>1,2,3</sup> Marmara Üniversitesi, Teknik Bilimler MYO, 81040 Göztepe-İstanbul*



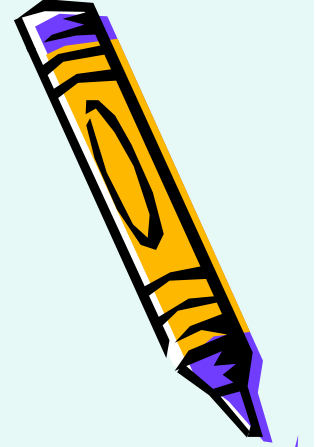
# İstanbul Kent İçi Trafiğindeki Durum;

- Karayolu ulaşımını payı %90
- 1997 araç sayısı 1.5 milyon
- 2001 araç sayısı 2.5 milyon
- Yol kapasitesi ve hizmet düzeyi düşük
- Sonuç TRAFİK SIKIŞIKLIĞI



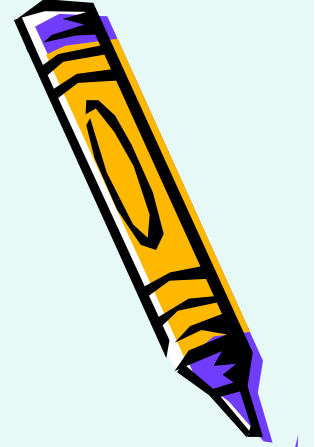
## Durum;

- Trafiğin en yoğun yerler;
- Boğaziçi ve Fatih Sultan Mehmet Köprüleri ve bağlantı yolları;

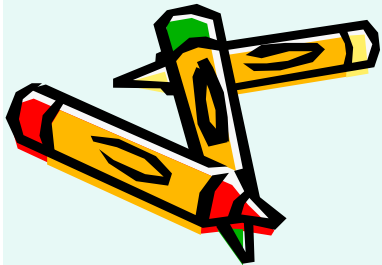


# En Ekonomik Çözüm;

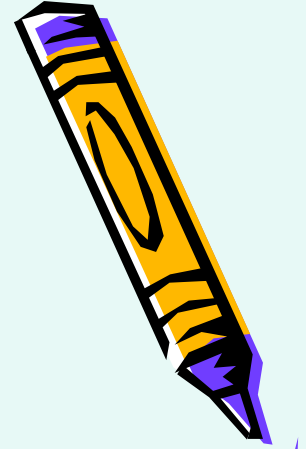
- Akıllı Trafik Kontrol Teknikleri  
(ITS Intelligence Traffic Control Systems )  
kullanarak trafik akımlarının daha  
etkili kontrol edilmesi



Dünyada ITS;

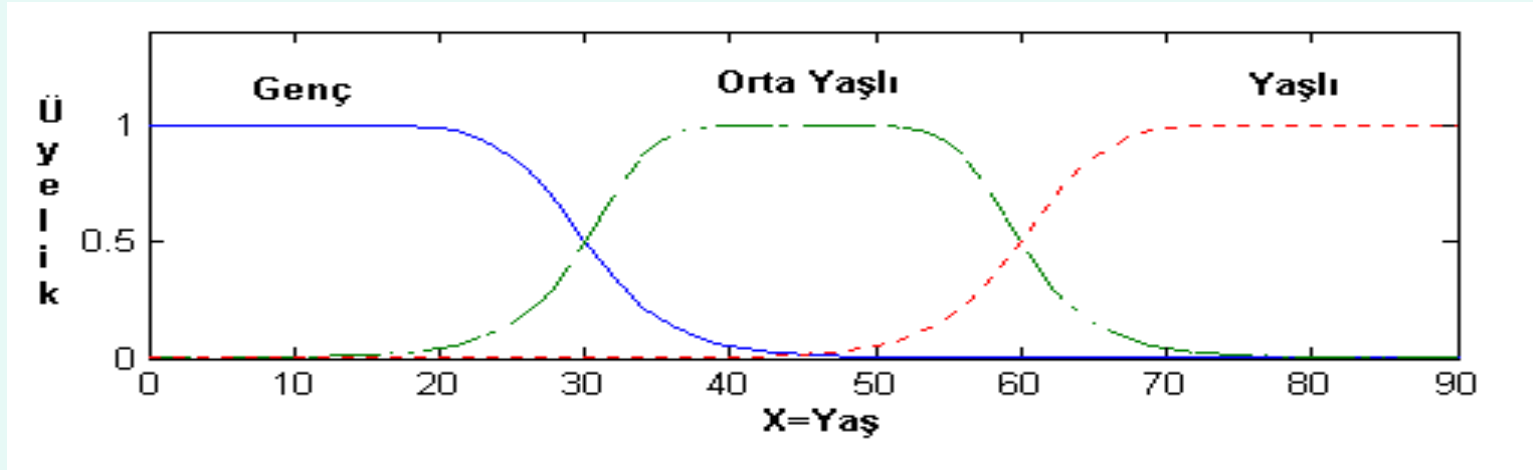


Dünyada ITS;

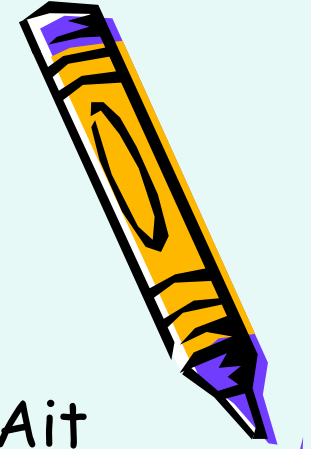


# Bulanık Kontrolör

- Klasik Kümelerde bir Üye Kümeye Aitdir veya Ait değildir.

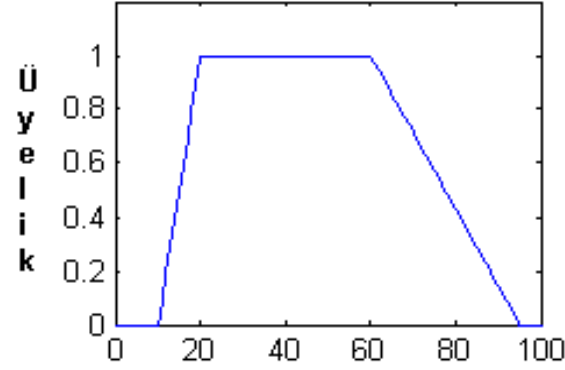
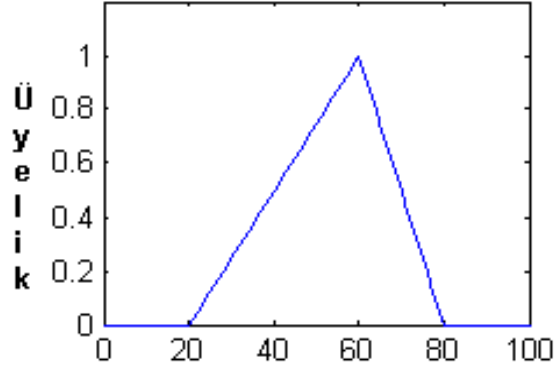


**Bulanık Set'lerde bir Üyenin Kümeye Aitlik Değeri Üyelik Fonksiyonu İle Belirlenir.**

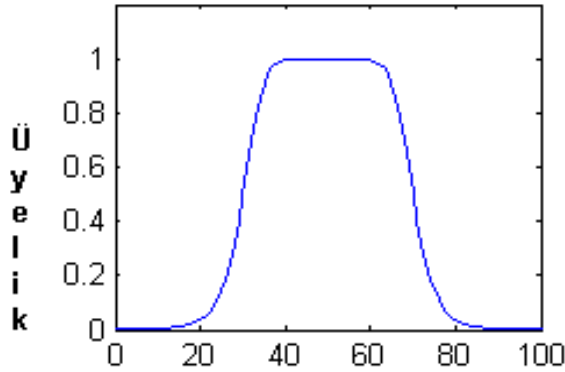
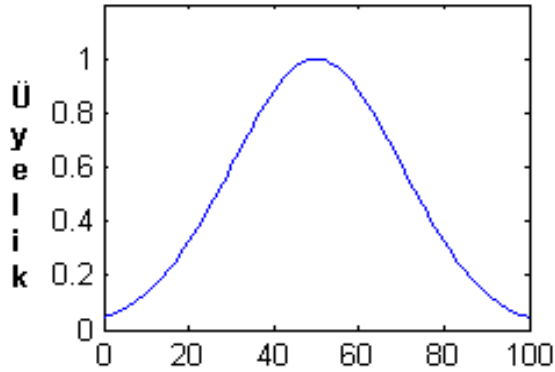


# Üyelik Fonksiyonları

Üçgen



■ Gauss

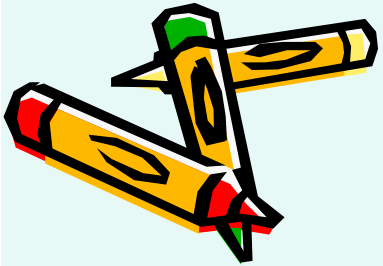
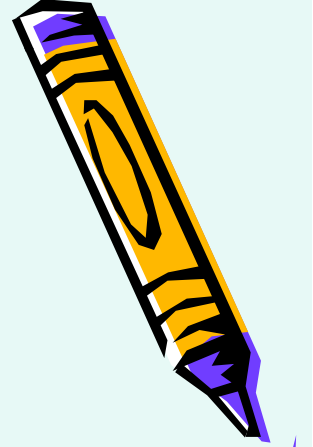


Yamuk



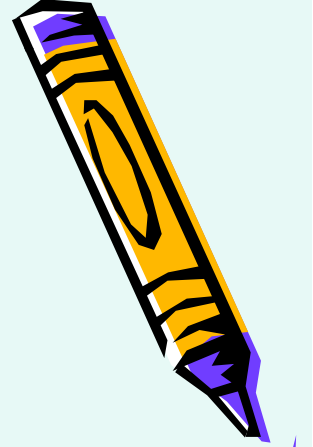


# Kural Tabanı

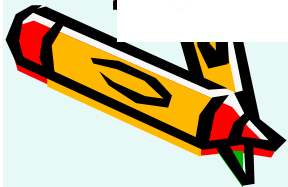
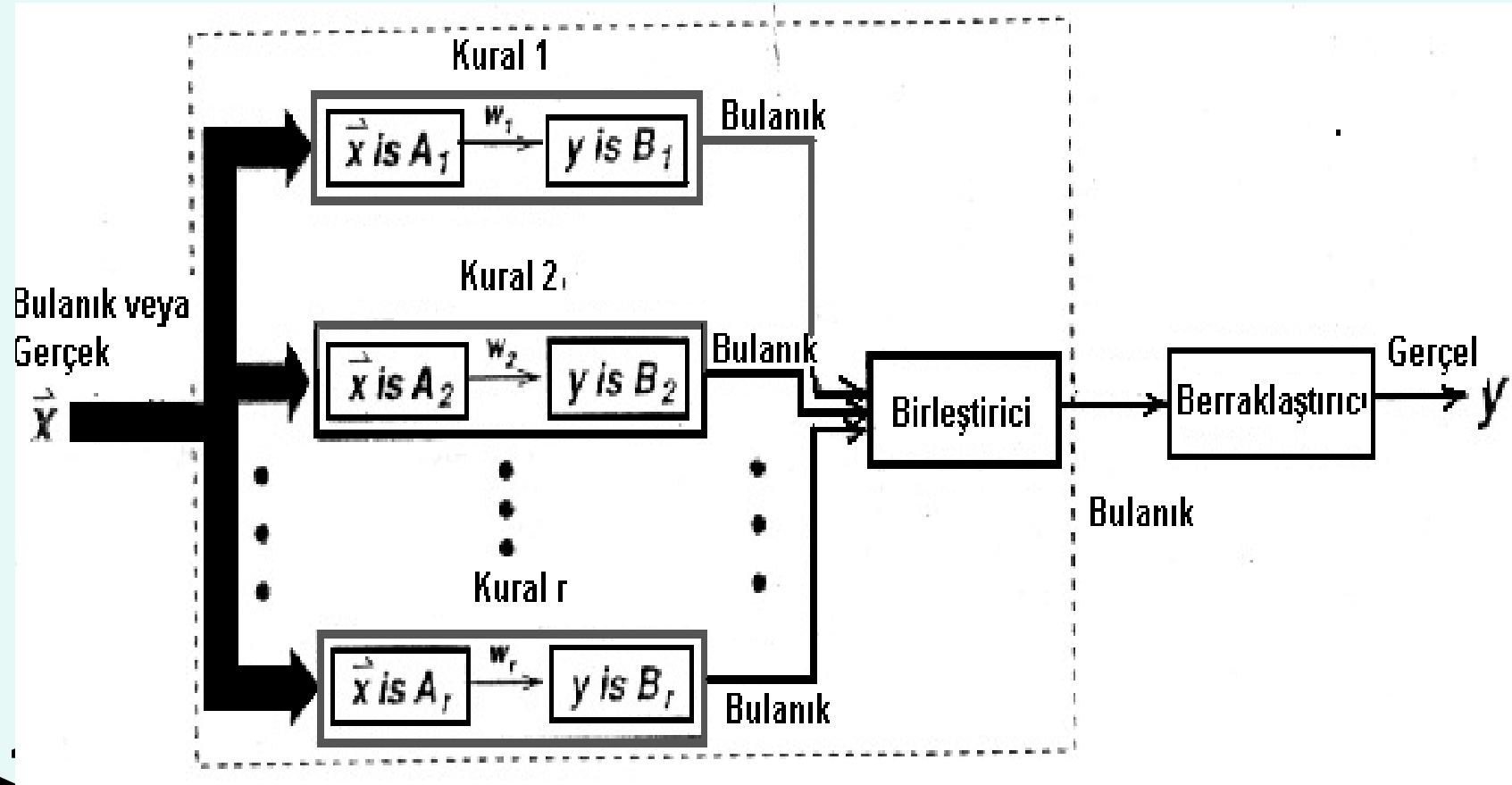


# Çıkarım Yöntemleri:

- Mamdani Bulanık Modeli
- Sugano Bulanık Modeli
- Tsukamoto Bulanık Modeli



# Çıkarım

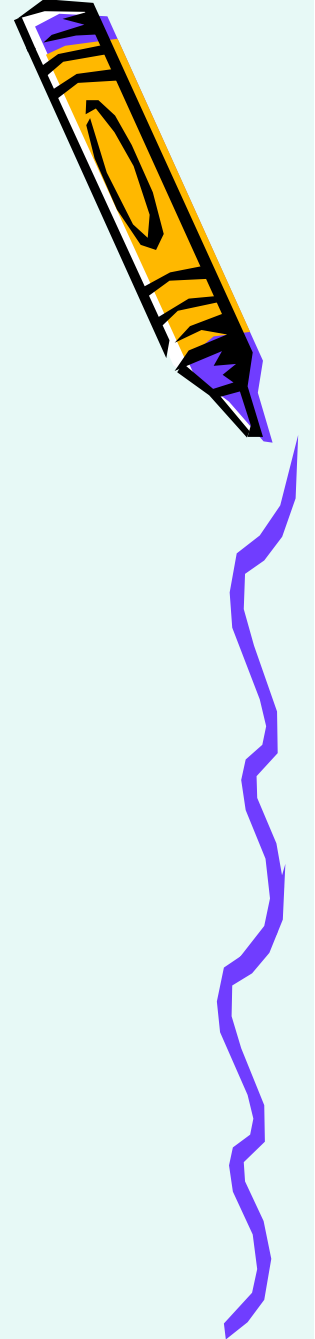


# Berraklaştırma Motodları

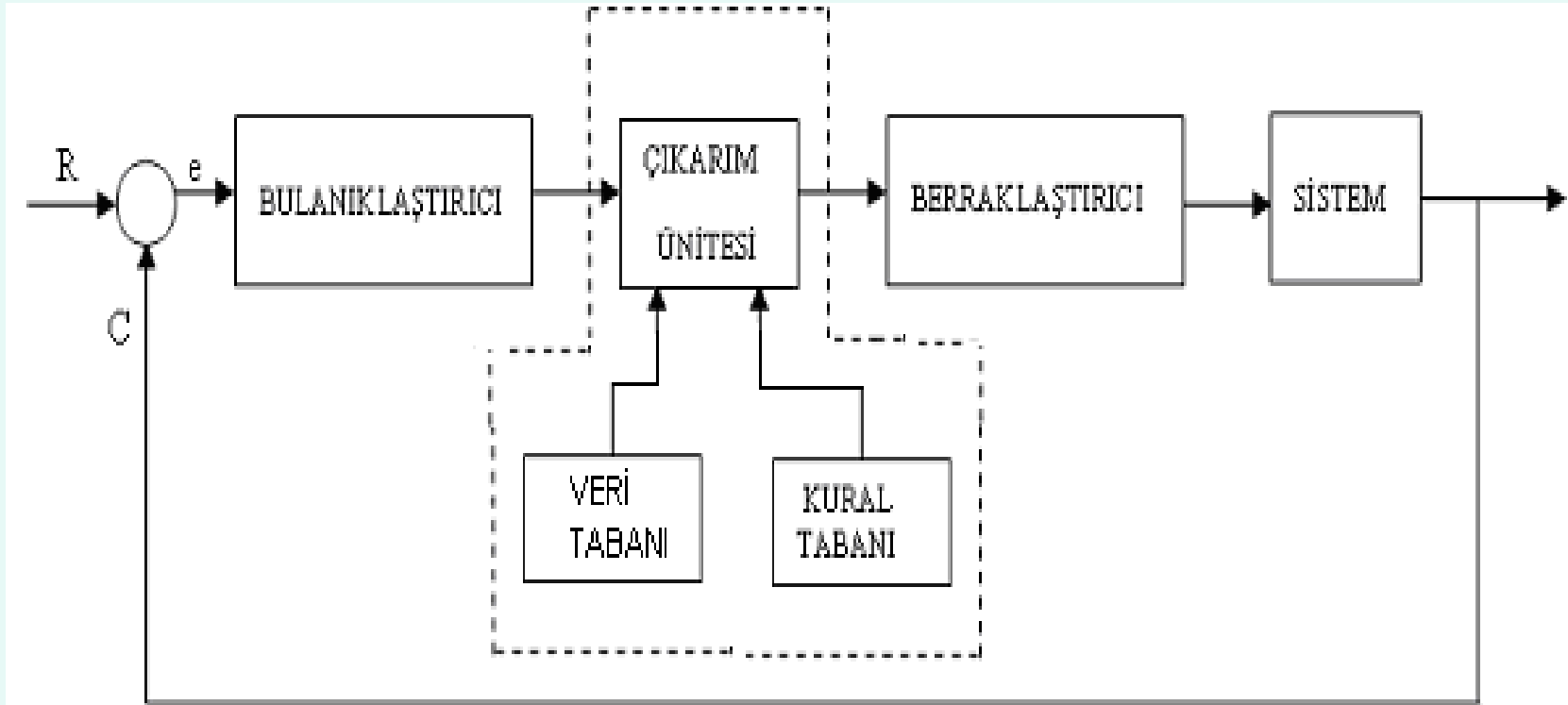


- Maksimum Üyelik
- Alanın Merkezi
- Ağırlıklı Ortalama
- Maksimumların Ortalaması
- ..
- ..

\* Mamdani Bulanık Modelinde Kullanılır.

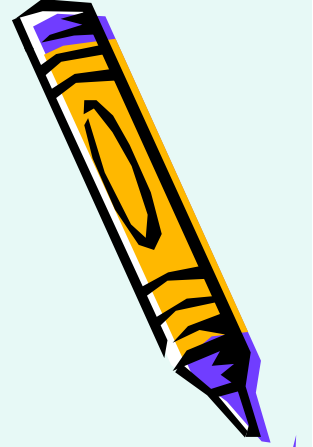


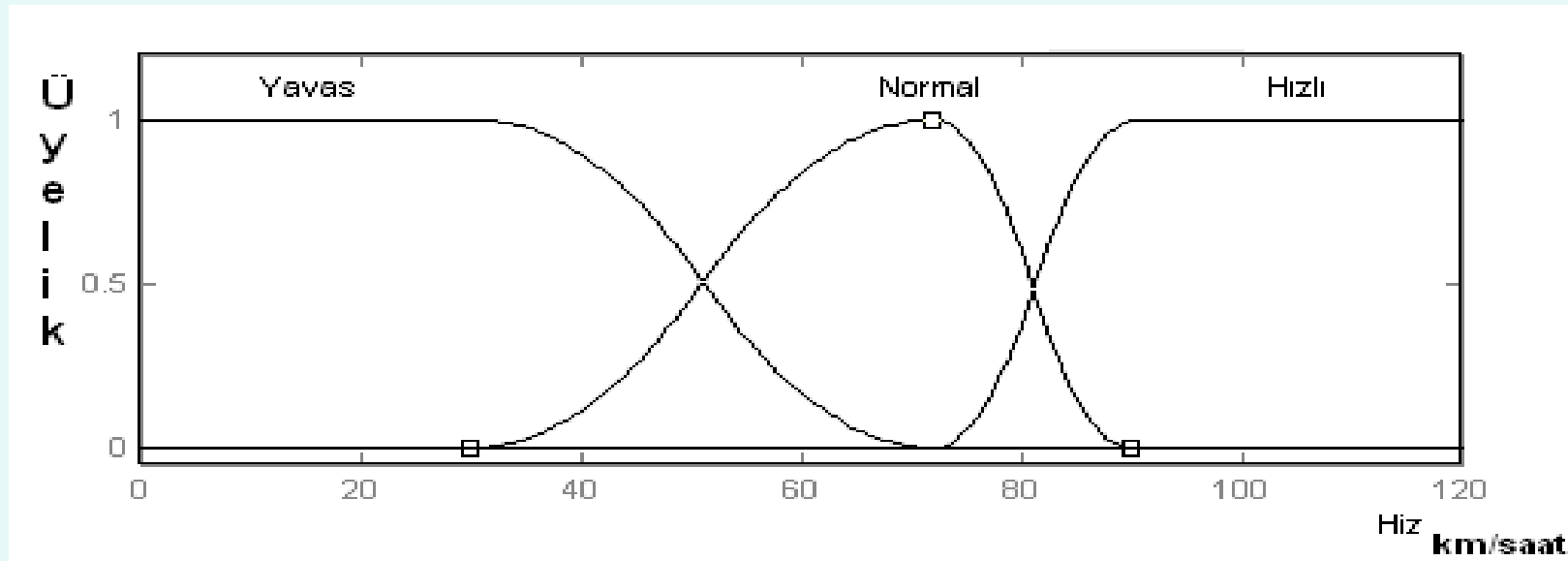
# Bulanık Kontrolör

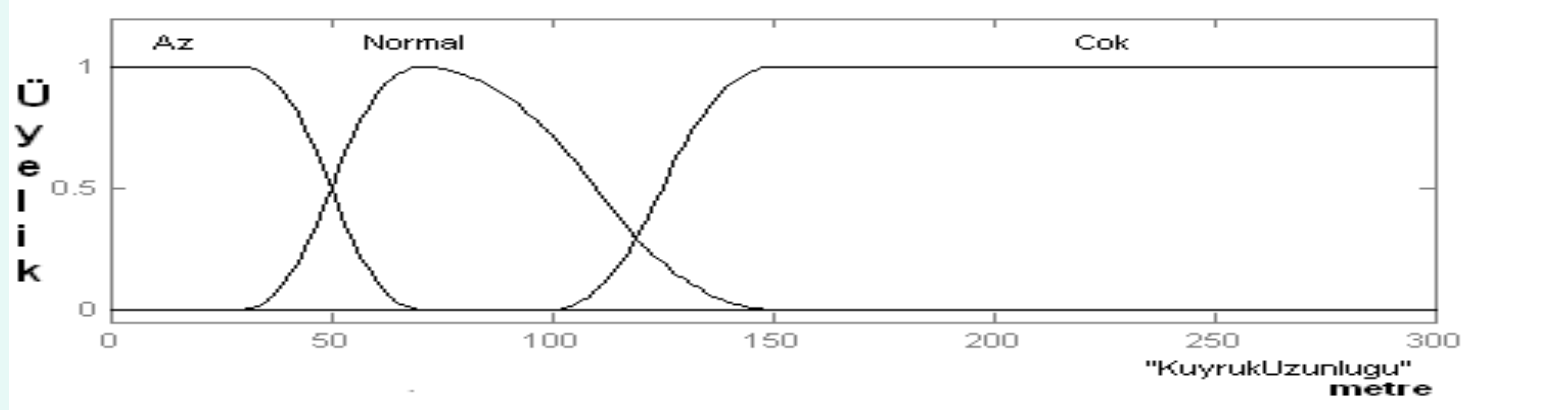


# Simülasyonu Gerçekleştirilen Sistem

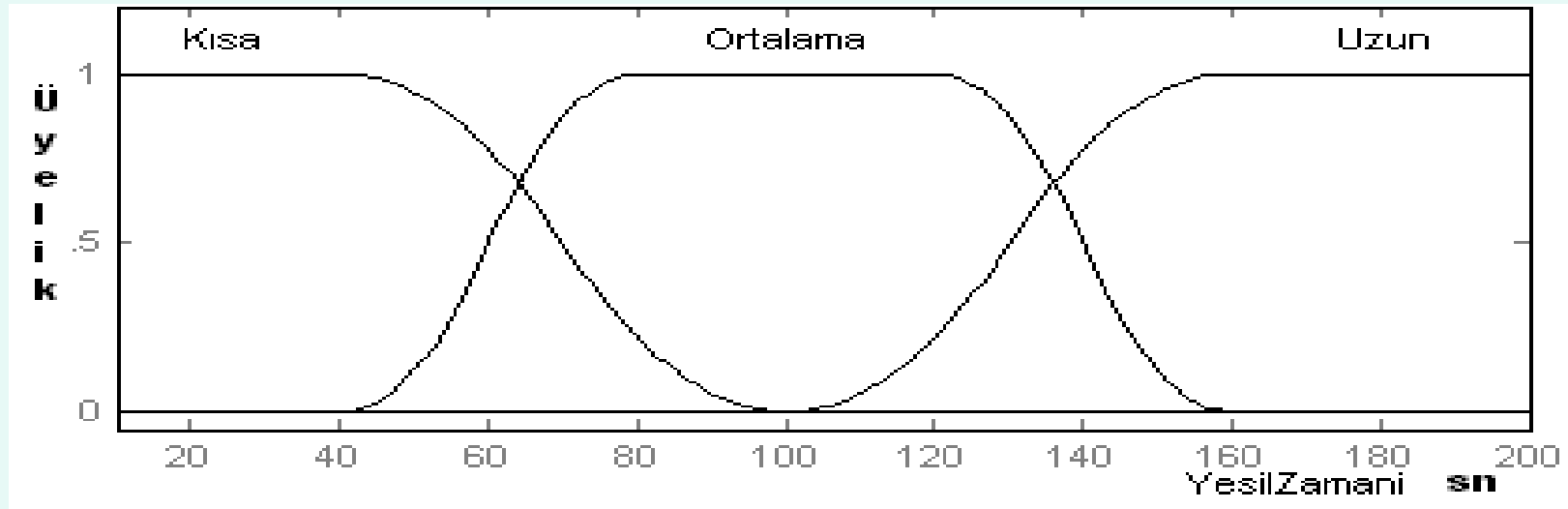
- Şekil







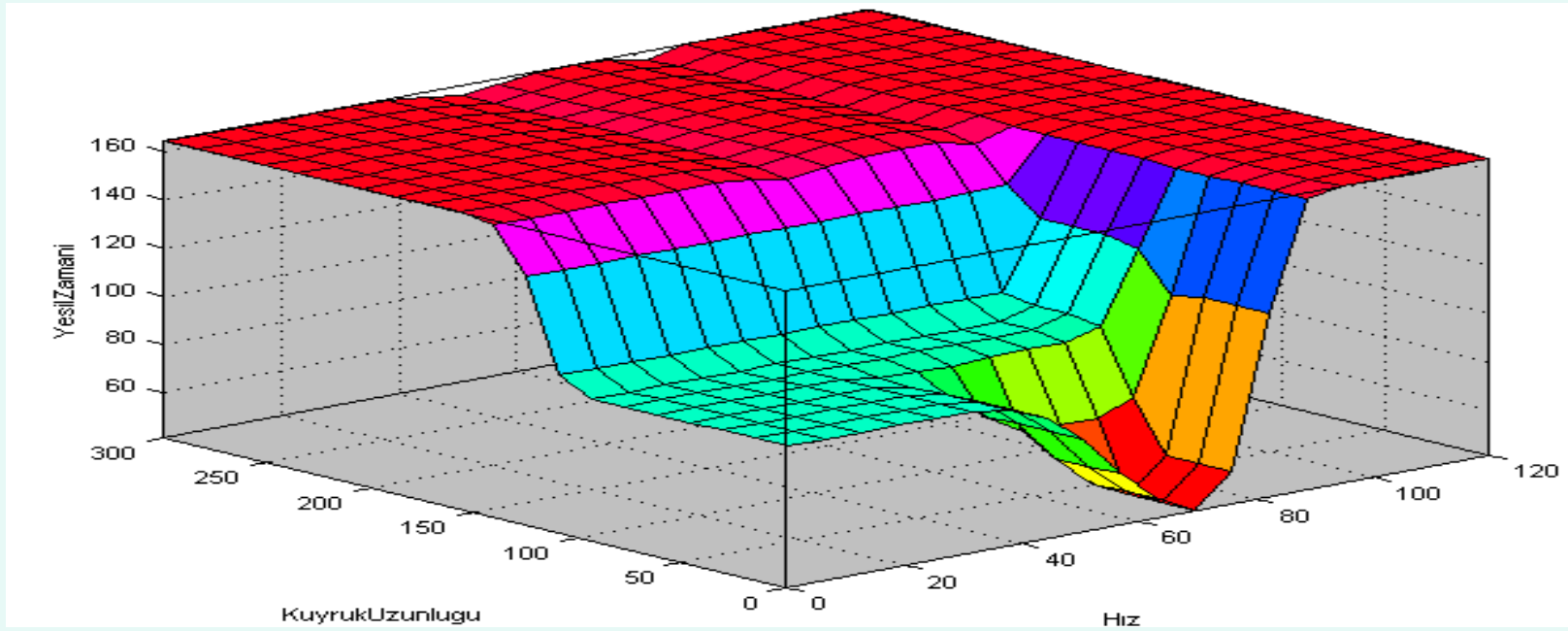




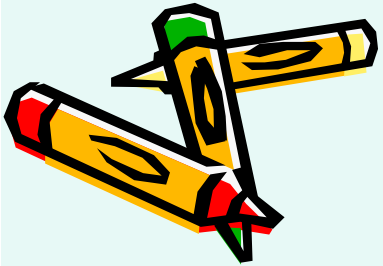
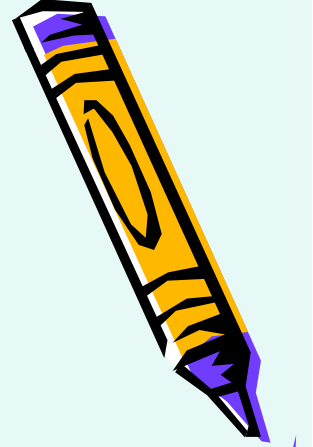


1. If (Hiz is Hizli) then (YesiZamani is Uzun) (1)
2. If (Hiz is Normal) and (KuyrukUzunlugu is Az) then (YesiZamani is Kisa) (1)
3. If (Hiz is Normal) and (KuyrukUzunlugu is Normal) then (YesiZamani is Ortalama) (1)
4. If (Hiz is Normal) and (KuyrukUzunlugu is Cok) then (YesiZamani is Uzun) (1)
5. If (Hiz is Yavas) and (KuyrukUzunlugu is Az) then (YesiZamani is Ortalama) (1)
6. If (Hiz is Yavas) and (KuyrukUzunlugu is Normal) then (YesiZamani is Ortalama) (1)
7. If (Hiz is Yavas) and (KuyrukUzunlugu is Cok) then (YesiZamani is Uzun) (1)





# Simulasyon Sonuları



Sonuç;

