# MULTIMEDIA PROYEKTORLARINING KLASSIFIKATSIYASI

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"Multi" so'zi ko'pchilik deganini, media esa, video va audio bilan bog'liq jihatlarning hammasi, proektorning ma'nosi tushunarli, albatta, proektor – tasvirni proektsiya qilish (ko'rsatish) uchun qurilmani bildiradi. Zamonaviy videoproektor boshidan raqamli qurilma hisoblanadi, shuning uchun unga videomagnitofonni ham, DVD – pleer, videokamerani, televizor xamda kompyuterni ulash mumkin.

Multimedia proektori bir aniq belgilangan fokus masofasiga bog'liq emas, shuning uchun proektorni turli joylarda va har xil masofada qo'yish mumkin. Zamonaviy proektorlardan xonani qorong'u qilmasdan uni kun bo'yi ishlatish mumkin. Eng portativ proektor tasvirni diagonalli 8 metrgacha o'lchamda ko'rsatishi, eng kuchlisi esa – 36 metr diagonalgacha ko'rsatishi mumkin. Uning ana shu har tomonlama «imkoniyatlariga» qaramay, bu qurilma foydalanishda maxsus bilimlarni talab etmaydi, og'irligi 1,5-5 kg. va kitob hajmidan to diplomat hajmigacha kattalikka ega. Eng kuchli professional proektorlar 38 kgdan og'ir bo'lmaydi.

Proektordan turli joylarda ham foydalanish mumkin. Undan quyidagi sharoitlarda foydalanish mumkin:

— uy kinoteatri uchun;
— prezentatsiyalar uchun;
— ma'ruza (leksiya) mashg'ulotlari uchun;
— kontsert va tamoshalar uchun;
— restoran va kafelarda;
— stentdlarda ko'rgazma faoliyati uchun;
— va nihoyat kinoteatrlarda ham.

Videoproektorlarni qo'llanilgan texnologiyasiga qarab, turlariga ajratish mumkin. Har qanday proektorning asosida (odatda) yarimyorug' slayd orqali yorug'lik o'tkazish (yoki aks ettirish) yo'li bilan tasvirni namoyon etish, paydo qilish yotadi.

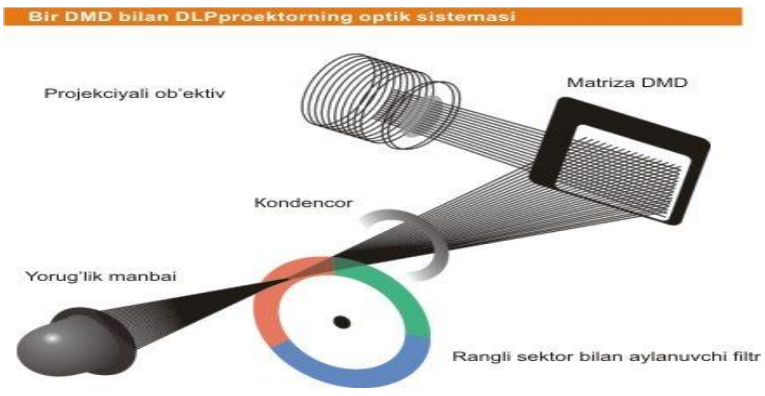
Kinoproektorlarda kinoplyonka kadrlari (slaydlar) ma`lum tezlikda juda katta kuchga ega yorug'lik manbai oldidan tortib o'tkazilib, ekranda harakatlanuvchi suratni aks ettiradi. Zamonaviy proektorlarda slaydlar (plyonka) rolini turlicha qurilmalar bajarishi mumkin. Shuning uchun videoproektorlarni besh turga ajratish mumkin:

— CRT proektorlari – ular uchta nurlanish kineskopidan iborat bo'lib, R, G va B boshlang'ich ranglarda rangli plyuminofora Bilan katta bo'lmagan yorqin tasvirlar yaratadi. Bu tasvirlar uchta ob`ektiv bilan optik mustaqil (alohida) kanallarda ekranga tushiriladi, bu erda optik aniq moslashadilar va umumiy rangli tasvirni tashkil etadilar. CRT proektorlari juda ham katta bo'ladi (hammasi ham odatda 60 kg dan og'ir) va malaka, ehtiyotkorlik bilan aniq ishlashni talab etadi.

— Qaytarilayotgan yorug'lik (nur) oqimini modulyatsiyalaydigan proektorlar (Light Vale yorug'lik klapanli proektorlari va ILA – Image Light Amplifier proektorlari)dir. Bu turdagi proektorlar yorug'lik oqimini qaytarish va uni modulyatsiya qilish asosida ishlaydilar. Bu turdagi ko'plab proektorlardan CRT proektsion kineskopi asosidagi (Cathode – Ray Tube – el. Nurli trubka) Light Vale yorug'lik klapanli proektorlar va u ham CRT-kineskoplari va mikro ko'zguli modulyatorlar asosidagi ancha yangi ILA proektorlari eng ko'p foydalaniladiganlari hisoblanadi. Light Vale yorug'lik klapanli proektorlarida quyuq rangsiz suyuqlik (moy)ning yupqa yuzasining unga elektronning tushishi ostida deformatsiyalanishi fizik xossasidan foydalaniladi.

— D- ILA proektorlari (Direct-drive Image Light amplifier) — bu JVC Professional Products kompaniyasi tomonidan yaratilgan bo'lib, uning savdo markasi hisoblanadi. Bu proektorlar ham ILA turidagi qaytariladigan yorug'lik oqimini modulyatsiya qiladi, ammo CRT-kineskopidan foydalanmaydi. Yorug'lik og'imi uchta JK qaytaruvchi panellardan qaytariladi va rangli tasvirni yuzaga keltiradi. JK qaytaruvchi panellarning juda kam issiqlik yo'qotishi bilan birga boshqa muhim ustunliklari ham bor.

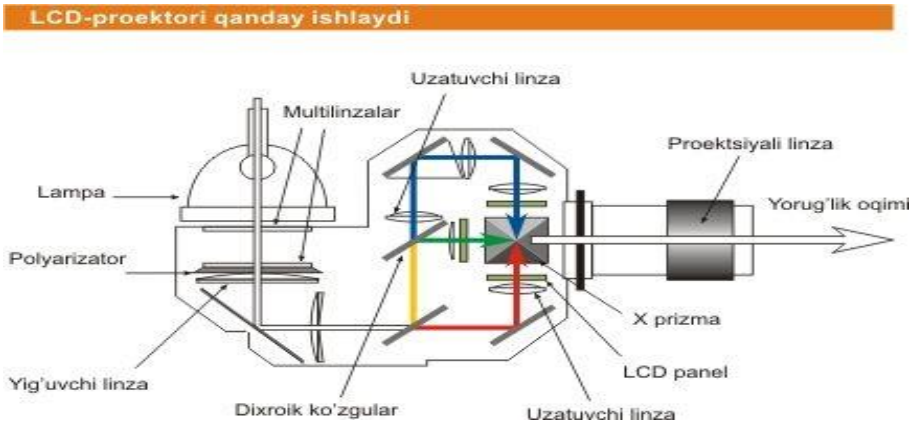
— DMD mikrozerkal proektorlari (yoki DLR proektorlari) – 1996 yil bahorida Texas Instruments firmasi birinchi DLP (Digital Light Processing) raqamli proektsion blokini taqdim etdi, uning asosini DMD matritsasi tashkil etadi (Digital Micromirror Devise — raqamli mikrozerkal kristall).DMD chipi proektorlarning optik tasvir zichligiga teng bo'lgan aylanuvchi alyumin oynadan tashkil topgan matritsadan iborat yorug'lik modulyatordan iboratdir. 16×16 mkm o'lchamdagi oynalar podnojkada mexanik prujinani ilgaklar yordamida mahkamlanib ular +(-) 10% lar orasida burilishga imkon beradi.



LCD suyuq kristalli proektorlar – JK, LCD (Liguid Crystal Display) matritsalari qo'llanishiga asoslangan proektorlarning eng ko'p tarqalgan turi hisoblanadi. Zamonaviy LCD proektorlarida polisekonli (P-si) issiqlikka chidamli aktiv JK — lipsli va TFT yupqa plyonkali tranzistorlar qo'llanib, QXGA (2048×1536) tasvir zichligiga erishiladi. LCD proektorlarining ishlash jarayoni umumiy ko'rinishda shundan iborat: yorug'lik oqimi dixrong optika yordamida uchta tarkibga parchalanadi (R, G, B) va uchta matritsaga yuboriladi, ular har bir rang uchun "slayd" ni yuzaga keltiradilar, shundan so'ng yana optika yordamida (prizmalar murakkab tizimi) yorug'lik oqimi yana birlashadi va ob`ektiv orqali ekranda tasvirlanadi. Narxi va mahsuldorligi nisbati bo'yicha LCD proektorlari eng yaxshi hisoblanadi.

DLP yoki LCD, qaysi biri yaxshiroq?

Balki eng professional raqamli videoproektorlar doirasida uchta DMD li DLR proektorlari eng yaxshisi hisoblanadi deyilsa, ammo bu proektorlarning (uning og'irligi va kattaligidan tashqari) narxi o'n ming dollardan oshiqroq turadi.




DLR proektorlarining yorqinligi va kontrastligi yuqori va hajmi, ogirligi kamroq (og'irligi 2 kg dan kam, kitobdek hajmga ega). Biroq LCD proektorlarda ranglar quyuqligi yuqorirok va tasvirda jimillash yo'q.

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